



# CATHEDRAL ALLOTMENT

## EVALUATION



## I. Introduction

This document is a summary of the Analysis, Interpretation and Evaluation process for the Cathedral Allotment (allotment number 00600) within the Richfield Field Office. During BLM's planning process, grazing allotments were grouped into three categories based on ecological condition and trend, potential for improvement, resource use conflicts, positive return on investments, and effectiveness of present management. The Cathedral Allotment is categorized as an Improve (I) Allotment. Category I (Improve): This category will receive first priority for rangeland improvements as funding becomes available. Special management actions are needed - major resource conflicts and/or other grazing problems exist, but allotments have potential for improved productivity and positive return on investments. Permittees will be encouraged to invest in rangeland improvement projects which would enhance their use of the allotments. Cathedral allotment is located in eastern Wayne County, north of Highway 24, approximately three miles west of Hanksville, Utah. (See Attachment 1)

The decision, RM-1, in the Henry Mountain Management Framework Plan (MFP) approved in Nov. 1982 rejected the multiple-use recommendation and accepted the No-Action--maintain existing forage allocation (Alternative B) as evaluated in the Henry Mountain Grazing Environmental Impact Statement (EIS) (May 1983). Rationale of the decision was that studies were not completed enough to support changes in preference. Monitoring would be intensified over a 5 year period to gather sufficient data to determine proper grazing levels. The EIS (May 1983) Chapter 4, pg 110, under Alternative B: No Action Which was chosen for Cathedral allotment, recognized the allotment would be 34% over-utilized and called for a 632 AUM reduction in active preference..

In 1987 a Rangeland Program Summary (RPS) was completed. This RPS states the objectives of the grazing management program is to maintain and improve rangeland conditions and implement grazing use levels for livestock and big game which do not exceed the rangeland's grazing capacity. Management objectives were established for each allotment to evaluate, through monitoring, whether or not management systems and range improvements were beneficial to the range resource. The RPS established the



following management objective for the Cathedral allotment: Maintain 75 percent of the allotment in stable to improving trend. Reverse the downward trend in 25 percent of the allotment. Utilization will remain at or below 60 percent. Obtain better distribution by improved water development. Designate site specific objectives in FY88. Another objective was to ensure that the grazing management program maintains and improves rangeland conditions and implements grazing use levels for livestock and big game which do not exceed the rangelands grazing capacity.

On December 22, 1971, Public Law 92-207 was signed, which changed the status of Capitol Reef National Monument to that of a national park and increased its size from 37,000 acres to 241,671 acres. BLM lands were transferred to the park, and grazing permits then in force were retained by those holding permits. Based on a 1986 solicitor's opinion the grazing privileges within Capitol Reef National Park (CRNP) were purchased on a "willing seller" basis. Alvin Taylor sold his interests to CRNP in November 1998 and his grandson J. Alan Taylor transferred his permit to Leslie B. Jeffery in August of 1998. Hartnet, Rock Spring Bench and Cathedral allotments (11,688 acres) are within CRNP's boundaries. The park has purchased 85% of the AUMs that were allocated on park lands.

Those ranchers who trail across what is now Capitol Reef National Park when the Park was established may continue to do so under appropriate regulation by the Secretary of the Interior; and others who seek to trail across CRNP must apply for permission to do so from the Superintendent of CRNP and the BLM. Such permission may be denied if it is inconsistent with the management of the Park and BLM lands.



## II. Allotment Grazing Preference.

Table one shows the permittees in the Cathedral allotment, season of use, livestock number and percent public land.

**Table 1 - Livestock Use**

PERMITTEES	LIVESTOCK NO. KIND.	SEASON OF USE	ACTIVE PREF.	SUSPENDED PREF.	TOTAL PREF.	PERCENT PUBLIC LAND
JACKSON, John	74 C	10/1-5/30	589	187	776	100%
JEFFERY RANCHES, INC.	220 C	11/1-5/30	1,262	121	1,383	82%
JEFFERY, Weslie B	79 C	11/1-2/28	314		314	100%
OKERLUND, Evelyn (43 AUMs CRNP)	76 C	11/16-5/31	433	105	538	88%
PACE, Barlow	61 C	5/2-5/31	60		60	100%

## II. Allotment Profile

### A. Allotment Description (Location, Land Status and Resource Value)

The Cathedral Allotment is located in Eastern Wayne County, Utah. The allotment can be reached via automobile by driving 3 miles Northwest of Hanksville. It is comprised of 104,645 acres of public land, 10,898 acres of state land, 1,530 acres of private land & 13,608 acres of Capitol Reef National Park lands for a total of 130,681 acres. (See Attachment 1, Cathedral Allotment Map)



All of the range improvement projects identified in the Cathedral Allotment were completed many years ago. Snow, springs and reservoirs are the sources of water in the allotment. Maintenance on the reservoirs in the Middle Desert portion of the allotment has not been done in many years. All of the Middle Desert portion of the allotment is in HR 1732 (House of Representative Bill Number 1732) which may affect any maintenance now and the construction of any new reservoirs. Most of these reservoirs need work to the point they may be considered as new construction. Current springs (Willow, Camper, Head of Salt Wash and at Temple of the Sun/Moon) are not running with any reliable flow due to drought and brush invasion. In the Factory Butte area, water is hauled by the Jackson's for their use and they have maintained the reservoir in their area. In the last five years there has not been sufficient water for proper distribution of livestock in the Middle Desert. (See Attachment 1, 2 & 7)

The allotment is within the Henry Mountain Planning Unit (503) of the Henry Mountain Resource Area. The Unit Resource Analysis and the Management Framework Plan were completed in 1982 (Henry Mountain Grazing EIS-May 1983).

Topography within the Cathedral Allotment consists of benches and plateaus. The elevation of the bottoms and the bench-lands ranges from 6,600 to 4,432 feet.

Approximately 84,606 acres of the allotment is within the HR 1732 boundaries. HR 1732 is the common name given to the wilderness proposal developed by the Utah Wilderness Coalition. This coalition is composed of approximately 106 groups and organizations that have developed their own wilderness proposal within the State of Utah. The proposal has been introduced as a bill in the House of Representatives thus the name HR 1732. The bill proposes that approximately 9.1 million acres of public land within the State of Utah be designated as wilderness.

Major portions of the Cathedral allotment are also located in BLM's new wilderness re-inventory. The re-inventory units involved are the Red Desert and Muddy Creek - Crack Canyon. The Secretary of the Interior has instructed the Bureau of Land Management to pay careful and particular attention to development proposals that could limit congress's ability to designate certain BLM areas in Utah as wilderness, even though these areas



have not formally been designated as wildness study areas. Grazing and future range developments in the Cathedral allotment would be evaluated according to this general policy.

The allotment is bounded on the east by the Wildhorse Allotment, south by Utah State Highway U-24, Fremont River and Capitol Reef National Park, west by the Fishlake National Forest and Capitol Reef National Park, north by the Moroni Slopes and the Wayne - Emery County Line. Natural barriers and small segments of fencing complete the boundary lines. One such natural barrier is the Fremont River. Capitol Reef National Park boundaries are marked by fences and natural barriers. (See Attachment 1)

Four areas on the lower Fremont River between Caineville and Hanksville have been determined as preliminarily eligible for inclusion in the Wild & Scenic River System. These are located in T. 28 S., R. 9 E., Sec. 22, 23 & 24; T. 28 S., R. 10 E., Sec. 19 & 21; T. 28 S., R. 11 E., Sec. 13, 17, 18, 20, 22, 23 & 24. Any grazing decisions will be analyzed for impacts to potential Wild & Scenic River designation. Protection for this area is also covered under section 202 of the Federal Land Policy Management Act. (See Wild & Scenic River Map - Attachment 11)

Average annual precipitation in the Factory Butte rain gauge, located east of Factory Butte on the Cathedral Allotment, is **5.36** inches. The driest months are July and August and the wettest months are September and December. The second rain gauge is located in the Hartnet Allotment near the boundary that separates Hartnet and Cathedral Allotment. The average annual precipitation at the Hartnet rain gauge is **5.6** inches. The mean annual precipitation for the Henry Mountain Resource Area is **6.25** inches. Snow appears on the Henry and Thousand Lakes Mountains sometime in November and stays until April and May. The temperatures are generally mild in the winter and hot in the summer. (See Attachment 4 & 5)

The soils in the Cathedral Allotment are sandy to sandy loam, derived from sandstone parent material. The soils are well drained and are predominantly sandy clay loam in texture, with some gravelly loam textured soils also present. Parent materials are from igneous and sandstone rock. The erosion categories of



the allotment is 21% slight, 51% moderate, 22% critical, 0% severe, and 2% stable.

Vegetation on the upper bench-lands, slopes and canyons of the Cathedral Allotment consist of Indian ricegrass, curlygrass, sandhill muhly, cheatgrass, mormon tea, blackbrush, fourwing saltbush, phlox, locoweed, halogeton, rabbitbrush, and juniper. On the lower benches and plateaus, vegetation consists mainly of Indian ricegrass, sand dropseed, needle-and-thread grass, curlygrass, squirreltail, shadscale, fourwing saltbush, mormon tea, blackbrush, and cactus.

Game animals include pronghorn antelope, deer, dove and chuckars. Sometimes during the winter months, a small herd of elk from the Thousand Lakes area graze the allotment. The elk enter Hartnet and Cathedral allotments at the South Desert Overlook located in the Hartnet allotment. From there they go into the middle desert portion of Cathedral and/or Hartnet Draw down to Blue Flat to the Red Desert. A few elk have been seen in Caineville Wash. Big game use in the allotment is primarily during the winter and spring months when snow levels are deep on the Thousand Lakes area. Desert Bighorn sheep have been recently planted in CRNP and have been sighted north of Capitol Reef Visitors Center and in the Factory Butte area a few times, however, this has not been a common occurrence.

#### B. Grazing System

Class of livestock on the Cathedral Allotment is cattle, kind of livestock is cow/calf, and season of use for each permittee is shown on Table 1. The permittees in the allotment have themselves chosen certain areas in which to run their livestock. The southeastern portion of the allotment (Factory Bench area) is used by the Jackson family, Barlow Pace prefers the Red Desert and Caineville Wash area in the spring. The remaining permittees (Jeffery Ranches Inc., Weslie B. Jeffery and Clen Okerlund) use the area west of Factory Bench and portions of Wood Bench up to the Capitol Reef National Park. Clen Okerlund is the only premittee that has grazing privileges in the Capitol Reef National Park.



### **III. Purpose**

The purpose of this evaluation is to determine the effectiveness of management strategies that were established by the 1987 RPS. This will be done by analyzing current monitoring data (1990-97) and comparing the results with the 1987 RPS objectives. Data analyzed in this evaluation include actual use, precipitation, utilization and trend. This Evaluation has been prepared in accordance with BLM Manual Handbooks 4400-1 (Rangeland Monitoring and Evaluation), and TR 4400-7 (Analysis, Interpretation and Evaluation).

### **IV. Monitoring Results**

The concept of healthy rangelands expresses the BLM's desire to maintain or improve productivity of plants, animals (including livestock), soil and water resources at a level consistent with the ecosystem's capability. The policies, practices, and procedures are referred to as **Standards and Guidelines**. Standards refer to all uses of rangelands (recreation, minerals, etc.) and guidelines refers to grazing of livestock. Standards and Guidelines will apply to all uses of BLM land for forage, including livestock, wildlife and wildhorse and burros. (See Attachment 12)

Standards describe desired ecological conditions that BLM intends to attain in managing BLM lands, whereas Guidelines defines practices and procedures that will be applied to achieve Standards. While Standards will initially be applied to grazing, it is BLM's intent to eventually apply these Standards to all uses that have the ability to affect or be affected by the ecological characteristics of rangelands. The Cathedral allotment has been evaluated to determine if it is meeting the Standards and guidelines. The allotment as a whole was found to be in properly functioning condition. Indicators for the four standards indicate a portion of the Cathedral allotment does not meet **Standard 1, (a)(c), Standard 2, (c), Standard 3, (a)(c-e), and Guideline 11**. From the cattleguard on CRNP/BLM boundary fence down through the major spring (Camper Spr., Willow Spr., Boundary Spr. and Sheep Corral Spr.) to Caineville Wash is failing to meet Standards and Guidelines. Salt Wash is also



failing to meet Standards and Guidelines (See Attachment 12, S & G). Management changes for these areas are proposed on pages 32-35 of the evaluation.

The BLM in Utah has defined four Fundamentals of Rangeland Health, which are basic ecological principles underlying sustainable production of rangeland resources. These Fundamentals are embodied in BLM's new Grazing Regulation (43 Code of Federal Regulations, Part 4100) which became effective in August of 1995. These four Fundamentals of Rangeland Health, serve as the basis for Standard and Guidelines for Grazing Management (See Attachment 12).

Public involvement in developing these Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah was obtained through individual consultation, public meetings, and public mailings.

#### A. Actual Use

##### 1. Livestock

Average actual use from 1990-97 as reported by the permittees was 67% of total available preference. (See Attachments 3)

**Table 2 - Actual Use**

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Actual Use AUMs	1,195	950	1,612	1,804	1,947	1,255	1,058
% of 2,693 AUMs Available	44%	35%	60%	67%	72%	47%	39%

Precipitation has been on the decline, during the 1996-97 grazing period. Spring grazing was curtailed due to drought conditions to prevent degradation of the forage resources.



## 2. Wildlife

The Henry Mountain Grazing Environmental Impact Statement (May 1983) has reserved up to 222 AUM's for future deer use. However, this has not been officially allocated. There have been no AUM's reserved for Bighorn Sheep or Antelope. A few antelope have been spotted occasionally on the eastern portion of the allotment (Factory Bench area) in the last few years during the spring and fall months. We believe that these animals are coming in from the San Rafael Swell area when forage is in short supply in their use area. Elk have been coming off Thousand Lakes when snow levels are high and wintering on the Cathedral and Hartnet allotments. No AUM's have been allocated for their use. Chuckar have been seen in small numbers in upper Cathedral Valley next to the BLM/CRNP boundary.

## B. Utilization

The key forage species on the Cathedral Allotment are Indian ricegrass (*Stipa hymenoides*) and sand dropseed (*Sporobolus cryptandrus*). Other important forage plants within the allotment are galleta grass (*Hilaria jamesii*), alkali sacaton (*Sporobolus airoides*), needle-and-thread grass (*Stipa comata*) and old man sagebrush (*Artemisia filifolia*). On an allotment-wide-basis, the maximum allowable use is not to exceed an average of 60% of current annual growth on key species (Henry Mtn. EIS-May 1983). Maximum allowable utilization on browse plants (Old man sage and Mormon Tea) is 50% on the allotment. Maximum allowable utilization on grass plants (Indian ricegrass and sand dropseed) is 60% on the fall/winter/spring months. The methodology for determining utilization levels is the Key Forage Plant method as described in BLM Handbook TR-4400-3. A summary of utilization for the Cathedral Allotment for 1984 through 1996 grazing seasons are as follows:



**Table 3 - Utilization**

Shown in % of Utilization by plot. Years 1985-87, 1989-93 are not shown because data was not collected. The years 1984-89 were available even though they show high patterns of use.

**(MIDDLE DESERT)**

PLOT/YEAR	1984-85	1987-88	1988-89	1993-94	1994-95	1995-96	1996-97
1	64*	68*	66*	73*	22	63*	60
2	68*	70*	54	40	25	25	55
3	66*	74*	68*	51	26	33	35
4	68*	76*	60	29	40	58	46

**(FACTORY BENCH)**

PLOT/YEAR	1985-86	1987-88	1989-90	1993-94	1994-95	1995-96	1996-97
1	2.5	52	12	21	27	46	61*
2	57	43	14	25	32	58	43
3	3	3	3	3	3	3	0

\*max. allowable use exceeded.



**Table 4 - Weighted Utilization****FACTORY BENCH**

<b>Plot</b>	<b>Utilization for Evaluation Period</b>	<b>% of Time Grazed</b>	<b>Weighted Average</b>
T-1	26.8%	72%	19.3%
T-2	38.2%	27%	10.3%
T-3	3.0%	1%	.03%
Total		100%	29.63%

**UPPER CATHEDRAL**

<b>Plot</b>	<b>Utilization for Evaluation Period</b>	<b>% of Time Grazed</b>	<b>Weighted Average</b>
T-1	59.3%	75%	44.5%
T-2	47.0%	25%	11.8%
Total		100%	56.3%

**CAPITOL REEF NATIONAL PARK**

<b>Plot</b>	<b>Utilization for Evaluation Period</b>	<b>% of Time Grazed</b>	<b>Weighted Average</b>
T-3	53%	25%	13.3%
T-4	55.2%	75%	41.4%
Total		100%	54.7%



The allotment could be considered as a divided allotment, divided into four areas. The first area is CRNP, the second is Upper Cathedral or the Middle Desert-from the BLM/CRNP Cattleguard to Caineville Wash, the third area is Factory Bench and the forth is Salt Wash. The Red Desert and Caineville Wash have been used to excess by livestock. This area has been used in the past to hold cattle for loading and unloading when entering or exiting the allotment. When the water freezes or there is not ample water at Willow Springs in upper Cathedral, livestock drift down to this area because there is open water. Average utilization of forage species (Indian ricegrass, sand dropseed, galleta & mormon tea) for Upper Cathedral was 52.8% and 32.5% for Factory Bench for the 1984-96 grazing seasons. The utilization level for 1984-85 was 66.5%/20.8%; 1987-88 (72%/32.7%), 1988-89 (62%/9.7%); 1993-94 (48.3%/16.31%); 1994-95 (28.3%/20.7%) and in 1995-96 it was 44.8%/35.7% (See Attachment 4 & 5). Records are not clear as to why utilization was not measured during the 1985-86, 1989-90, 1990-91, 1991-92 and 1992-93 grazing periods. Utilization levels from 1984 to 1989 in the Middle Desert were beyond acceptable levels and the effects are affecting production levels today, the area has not recovered in as many years. Use pattern maps, utilization records and livestock count records that were prepared during annual utilization monitoring, have indicated that livestock continue to use the same areas, leaving other areas lightly used or not at all. In addition, Table 4 shows weighted utilization levels based on the use and amount of time spent by livestock at each key area. (See Attachments 4, 5, 6a - 6e).

#### C. Precipitation

The precipitation data used for this evaluation were collected at the Hartnet Rain Gauge located at T. 27 S., R. 7 E., Sec. 5, SW 1/4 NE 1/4 and the Factory Butte Rain Gauge located at T. 27 S., R. 10 E., Sec. 31., SW 1/4 SW 1/4. These rain gauges were established in 1979.

A summary of the precipitation amounts recorded at these sites for the past seventeen years (1979 through 1996) follows. The "% Average" column represents each year's data compared to the 16 year (Hartnet) or 17 year (Factory Bench)



average precipitation recorded at this site. This data is displayed graphically in Attachment 8-9a.

The 17 year (1980-1996) average annual precipitation at the Hartnet location is **5.60 inches** as compared to **5.93 inches** average annual precipitation for the evaluation period (1989-97). Factory Bench 18 year (1979-96) average precipitation is **5.36 inches** as compared to **5.32 inches** average annual precipitation for the evaluation period. The average critical growing season (March-June) precipitation recorded in Hartnet is **2.46 inches** (17 yr. Ave.) and **2.79 inches** evaluation period. Factory Bench 18 year average is **1.92 inches** and **1.74 inches** for the evaluation period. The mean precipitation level for the Henry Mountain Resource Area was **6.24 inches** at the time the Final Henry Mountain Grazing Environmental Impact Statement was published (May 1983). Looking at the percentage of moisture during the evaluation period shows very low/high readings during both critical and fall re-growth periods. The high readings come from severe thunderstorms, at a time when soils are crusted due to heat and wind, in which case most of the water runs off in the form of flash floods. Generally, the rains come in a hit and miss rain patterns across the desert floor followed by high ground temperature, wind, and the actual amount of moisture that fell is not conducive for healthy forage production. Historical records show the same low moisture levels over a long period of time.

The Hartnet rain gauge is located near enough to the Cathedral allotment to measure the precipitation which should, but not always, fall in the center of the Cathedral allotment. During the pre-evaluation years, seven out of nine years moisture levels during the critical growing season did not meet the average for that period. Same is true for the fall regrowth period when average moisture levels were barely met five out of nine times. Moisture level readings during the evaluation period were below the average reading five out of eight years and nine out of seventeen years. Eleven out of seventeen years the average moisture reading for the fall re-growth were not met.

Factory Bench rain gauge failed to show levels above the average yearly level seven out of seventeen years along with seven out of eleven years during the critical growing season. During the fall regrowth period moisture levels failed to meet



the average reading nine out seventeen years. For the evaluation period, moisture levels did not meet or just barely met the average six out of eight years for the fall re-growth period and four out of eight times in the critical growing season.

Precipitation readings in Hartnet for 1992-94 and 1995-96 were below the seventeen year and the last seven years average (evaluation period). In 1993-94 there was .5 inches of precipitation in March, .7 inches of precipitation in June and 1.4 inches of precipitation in late September. In 1995-96 there was .7 inches of precipitation in March, .2 inches of precipitation in May and 1.6 inches of precipitation in late August through September.

The Factory Butte rain gauge showed about the same patterns. In 1993-94 precipitation in the critical grazing periods was 1.2 inches of precipitation in March, .3 inches of precipitation in April and none in May through June. The secondary growth period had only .3 inches of precipitation fell in September. 1995-96 was no better with .5 inches of precipitation in March, .2 inches of precipitation in April and 1.1 inches of precipitation in September.

When moisture levels during a single year (Critical and fall re-growth) do not meet 4.20 inches, plant stress and health become a major issue. In years when fall moisture levels are lower than normal and the following spring moisture levels are lower than normal, extreme stress is put on the plant and non-grazing should be considered for the following fall and spring grazing cycle. These plants have been under stress for quite some time due to drought conditions of the previous years. Drought conditions do not mean just not enough rain, we must look at rain patterns. What portions of the allotment get rain and when? What was the temperature and how much wind did we have? Should it rain in an area and the winds and heat suck out the moisture, did plants really get to utilize the moisture? When these things happen, stressed plants are the result. The summer rains of 1997 managed to cover the entire allotment, some areas received more than others. This moisture produced a lot of annuals. Under these annuals we find some grass species. Observations show many grass plants were lost during the past drought and seedlings did not survive. The following is a summary of precipitation at Factory Butte and Hartnet Rain Gauge



and also shows precipitation levels during the critical and secondary growing seasons:





**Table 5 - Precipitation  
(Factory Bench)**

Year	Yearlong (Oct-Sept)	% Average	Critical Growing Season (Mar-June)	% during Critical Growing Season	Fall Re-growth Season (Aug-Oct)	% during Fall Re-growth
1979-80	4.55"	84%	2.10"	39%	.25"	5%
1980-81	5.80"	108%	2.65"	49%	3.80"	71%
1981-82	6.70"	125%	4.30"	80%	3.85"	72%
1982-83	5.50"	103%	2.40"	45%	.90"	17%
1983-84	4.20"	78%	.80"	15%	1.40"	26%
1984-85	4.90"	91%	2.10"	39%	1.30"	24%
1985-86	5.50"	103%	1.10"	21%	2.20"	41%
1986-87	7.40"	138%	2.30"	43%	1.10"	21%
1987-88	6.70"	125%	1.00"	19%	3.80"	71%
1988-89	2.22"	41%	.09"	2%	2.10"	39%
1989-90	3.90"	73%	1.80"	90%	2.10"	120%
1990-91	7.20"	135%	1.90"	95%	2.70"	155%
1991-92	4.79"	90%	4.70"	236%	.08"	5%
1992-93	4.94"	93%	.50"	25%	.14"	8%
1993-94	4.10"	79%	1.50"	75%	.30"	17%
1994-95	6.60"	124%	1.90"	95%	4.10"	236%
1995-96	2.00"	37%	.70"	35%	1.10"	63%
<u>1996-97</u>	<u>2.22"</u>	<u>42%</u>	<u>2.90"</u>	<u>146%</u>	<u>1.40"</u>	<u>195%</u>
1980-97	5.36"		1.73"		1.92"	
<b>Average</b>						
1989-97	5.32"	84%	1.99"	100%	1.74"	99.8%
<b>Average</b>						

**Evaluation  
Period**



**Table 5B - Precipitation  
(Hartnet)**

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<b>Year</b>	<b>Yearlong (Oct- Sept)</b>	<b>Percent Average</b>	<b>Critical Growing Season (Mar- June)</b>	<b>Percent during Critical Growing Season</b>	<b>Fall Re- growth Season (Aug-Oct)</b>	<b>Percent during Fall Re-growth</b>
1980-81	6.00"	107%	3.90"	68%	3.20"	56%
1981-82	6.85"	122%	4.00"	70%	3.75"	65%
1982-83	5.60"	100%	1.90"	33%	1.50"	26%
1983-84	4.70"	84%	.90"	16%	2.10"	37%
1984-85	5.00"	89%	2.45"	43%	.60"	11%
1985-86	7.30"	130%	0.00"	0%	6.20"	107%
1986-87	7.90"	141%	2.60"	45%	4.10"	71%
1987-88	7.70"	138%	2.30"	40%	1.20"	21%
1988-89	2.32"	41%	1.47"	26%	.80"	14%
1989-90	5.30"	89%	1.40"	54%	3.40"	218%
1990-91	5.50"	93%	3.50"	134%	2.00"	128%
1991-92	7.31"	123%	3.89"	149%	.00"	0%
1992-93	4.80"	81%	3.50"	134%	.80"	51%
1993-94	4.50"	76%	1.20"	46%	1.40"	90%
1994-95	7.40"	125%	3.90"	149%	1.70"	109%
1995-96	3.70"	62%	.90"	34%	1.60"	103%
<u>1996-97</u>	<u>9.00"</u>	<u>152%</u>	<u>4.10"</u>	<u>147%</u>	<u>4.90"</u>	<u>248%</u>
1980-97	5.60"		2.46%		2.30"	
<u>Average</u>						
1989-97	5.93"	100%	2.79%	100%	1.97"	100%

**Evaluation  
Period**



#### D. Riparian

The BLM established a national policy goal that guides management to identify, maintain, restore and improve riparian values to achieve a healthy and proper functioning condition. Drought conditions, livestock use and flash flooding have caused loss of vegetation at Camper Spring, Willow Spring and Boundary Spring. These springs only flow during the winter and early spring when there has been sufficient moisture during the year to recharge the aquifer. The riparian resources on the Cathedral allotment have been evaluated by our Riparian Inventory Team. Boundary Spring, Willow Spring, Salt Wash are listed as functioning at risk, Camper Springs is listed as non-functioning due to livestock use, tamarisk invasion and a decreasing water supply due to drought. Caine Spring is in properly functioning condition and is used by livestock, however, the spring is very high in salt concentrations. The riparian team recommended as early as 1995 that Camper and Willow Springs be fenced to exclude livestock and tamarisk removed to increase the water levels. It was recommended that some seeding and planting of willows be done due to the lack of a seed source. Fencing and water development will have to be done at the same time because these are the only water sources available for wildlife and livestock.

#### E. Trend

##### 1. Data Transects and Methods

Information is collected at seven trend plot locations within the Cathedral Allotment (See Attachment 1 for trend plot locations). The methodologies used for T-1 through T-7 are 5X5 Cover Plots and Quadrat Frequency. The methodology for 5X5 Cover Plots is explained in the Utah Rangeland Monitoring Supplement (H-4400-1). Guidance for reading and interpreting 5X5 cover plots was supplemented by the Richfield District Office on 11/03/80. The frequency methodology was conducted according to Utah State University Bulletin EC423, "Monitoring Range Trend with Species Frequency". The data has been analyzed and charts prepared to depict changes that have occurred since the establishment of these studies. A brief narrative follows to



summarize the changes that have been recorded. Additional range utilization cages and photo points need to be established so yearly changes can be looked at more closely. Frequency readings greater than 80% and lower than 20% have no statistical reliability. (See Attachment 6a - 6e)

## 2. Trend Interpretations

### A. Factory Bench

#### T-1

The trend index for the 5X5 cover plot has increased from 32.23 in 1979 to 64.11 in 1993, in 1996 it dropped to 57.5. Even though the numerical drop is small, it shows trend is dropping. The photographs show slight upward trend in this area. Frequency of Galleta (Hilaria jamesii) increased from 0 in 1979 to 57.5 in 1994, Indian ricegrass (Oryzopsis hymenoides) has increased from 6 in 1979 to 52.5 in 1996. This site has shallow rocky outcrops and sandy areas with moisture holding capability. There were a few Indian ricegrass seedlings established in 1992 and 1993 in the surrounding area of the plot but due to lack of moisture and hot winds few were able to survive. Mormon Tea and blackbrush are also found in sandy areas surrounding this plot. Indian ricegrass and curlygrass are the only species with frequency greater than twenty percent. The Henry Mountain EIS (1983) longterm estimate was that this plot would remain static. Basal area of plants is small, generally speaking we are talking about plants that have as few as three to ten stems at the base, and wind has blow soil away from the root systems.

#### T-2

The base (1979) trend on the 5X5 cover plot was 99.52. The trend index increased to 117.39 in 1980, then declined to 105.69 in 1993, and declined 89.6 in 1996. Photographs indicate it is on an static to slight upward movement at present. This plot is located in shallow soil with some gravel showing on the surface, a reservoir is located to the north about a quarter of a mile. Sand dropseed, Indian ricegrass



along with mormon tea are the significant species in the area surrounding the trend plot. Sand dropseed has gone out of the plot. Frequency of Indian ricegrass has increased from 0 to 42 in 1996. Galleta frequency has increased from 33 in 1979 to 62 in 1996. The Henry Mountain EIS (1983) long-term estimate was that this plot would increase. Frequency of Indian ricegrass and Galleta are both up a few plants.

### T-3

The trend index on the 5X5 cover plot appears to have been static from 1979 through 1996. The trend index has never been to high. The index was 3.42 in 1979 with some improvement up to 1989 when the high was 16.75. Now it has fallen to 5.87 in 1993. Due to the soil makeup all that has been able to survive is Halogeton and a few Atriplex plants. The Henry Mountain EIS (1983) long-term estimate was that this plot would remain static. This is a very poor range site due to the soil.

## B. Middle Desert (Upper Cathedral)

### T-1

The trend index of the 5X5 cover plot indicates a downward movement in the trend at this location. The trend index is down since 1989 (103.9) and currently stands at 92.6. In 1993 the index fell to 36.66. When the trend plot was established in 1979 the index was 9.5. This site has had utilization levels exceeding 90% within the last two years and it has not recovered due to drought and constant use. This area is heavily used when trailing to and from Fishlake National Forest because there is water and a corral within a half mile of the plot. Also, when water freezes in Salt Wash livestock move to this area. The photographs show a static to downward trend. Frequency readings on Indian ricegrass are dropping. The Henry Mountain EIS (1983) long-term estimate for this plot would be static.



T-2

This trend plot has been destroyed by mining activity and will re-located.

T-3 (CRNP)

This trend plot has had a history of up and down trend movement. Trend index in 1993 was 68.26 and in 1996 it fell to 62.5. Indian ricegrass (Oryzopsis hymenoides) has increased and decreased since its establishment in 1979. Galleta grass (Hilaria jamesii) and Alkali sacaton (Sporobolus airoides) are declining. Frequency readings have increased on Indian ricegrass and decreased on Galleta. Photographs show a static to slight upward trend. The Henry Mountain EIS (1983) long-term estimate for this plot would be to decline.

T-4 (CRNP)

The trend index of the 5X5 cover plot shows a downward trend since its establishment in 1968. Trend index in 1993 was 111.6 and in 1996 it fell to 45.5. Currently this plot has an index reading of 32.65. The photographs show a rapid decreasing trend in this area. Young Indian ricegrass plants appear to be not holding on. The number of mature plants has been declined since 1993. The Henry Mountain EIS (1983) long-term estimate for this plot would decline.

**C. Red Desert**T-1

This plot was destroyed several years ago by drilling activity (IPP Water Well) and has not been relocated. A new trend plot was established in 1995 in Caineville Wash which is representative of the Red Desert.



The trend data for the Cathedral Allotment is summarized as follows with (↑) indicating an upward trend, (→) indicating a static trend, (↗) slightly upward trend and (↓) indicating a downward trend.

Key Area	5 X 5 Trend Index	5 X 5 No. Mature Key Species	Frequency Key Species	Apparent Trend - Using Photo's Prof. Judgement Trend Studies
<b>Factory Bench</b>				
T-1	↑	↗	↗	→
T-2	↖	↗	↗	→
T-3	→	↓	→	↓
<b>Upper Cathedral</b>				
T-1	↓	→	↓	↓
T-2	This plot destroyed by mining activity			
T-3 (CRNP)	→	→	↗	↓
T-4 (CRNP)	↓	↓	↗	↓

One of the seven 5X5 trend index studies on the Cathedral Allotment shows an upward trend, plot number 1 on Factory Bench is showing a slight upward trend. Plot 2 is in a downward movement and plot 3 is static. Plot three on CRNP has a history of up and down movement, therefore this plot has been determined to be static. Plot two in upper Cathedral Valley has not been reestablished since it was destroyed. Positive change has been slow and has been significantly affected by the past several years of drought. Two methods of recording data have been used on the allotment. From the first recording up to 1984 crown cover was used and later, basal area became the standard means in which to record data. The Red Desert from 1968 - 1974 showed a static trend, due to drought conditions since it has been declining. The middle Desert from 1968-1980 showed a static



condition and continued in a downward movement. Factory Bench showed downward as well, with the exception of trend plot one which has showed some upward movement.

### IV. CONCLUSION

#### A. General Description

Appendix 2 of 1949 Technical Memorandum presents additional information concerning the situation, namely the potential market price, current value of silver, its utilization and usage in various applications, and the demand for it. It is apparent from the present situation that the supply is exceeding a significant amount. It would therefore seem there is a surplus effect on the potential market price determined by the preceding factors. The price could also be increased as a result, starting with the same basic problem of decreasing the present economic need for the metal, which partly, and the other, obtained in all nations are due to social and political dissatisfaction and the generalized feeling being born especially in the working class families and in their leaders that the American Government should take the initiative and establish another nation. The following table shows the following data:

Country	Production Millions of oz.	Consumption Millions of oz.	Surplus Millions of oz.
U.S.A.	1000	800	200
U.S.S.R.	100	100	0
China	100	100	0
Other Countries	100	100	0
Total	1200	1000	200

The following table gives the following information: Estimated utilization of silver in the following industries during 1949.



## V. Conclusions

### A. Study Data

#### 1. Actual Use and Utilization

Appendix 2 of BLM Technical Reference TR4400-7, Analysis, Interpretation and Evaluation, shows the potential stocking rate formula which is based on actual use, utilization and weighted average data. This formula is used to calculate the proper stocking level for a specific area during a specific time period. Climatic factors may have a profound effect on the potential stocking rate as determined by the stocking rate formula. This formula is used as a tool, along with the other data presented, to determine the proper stocking rate for both the middle desert portion and the entire Cathedral Allotment as one unit. Actual use and utilization data for the evaluation period have been applied to the stocking rate formula and is shown on page 8 & 9. Average/Weighted Average Utilization is the average or weighted average utilization. The following calculations are for the entire allotment.

<u>AUM's Actual Use</u> Average/Weighted Average Utilization	::	<u>Potential Actual Use</u> Desired Average Utilization
<u>1988-89</u>		<u>1993-94</u>
<u>1,753</u> :: <u>P</u> 46.87%      60%		<u>1,804</u> :: <u>P</u> 46.87%      60%
<u>P</u> = <u>2,244.079</u>		<u>P</u> = <u>2,309.366</u>
<u>1994-95</u>		<u>1995-96</u>
<u>1,947</u> :: <u>P</u> 46.87%      60%		<u>1,630</u> :: <u>P</u> 46.87%      60%
<u>P</u> = <u>2,492.425</u>		<u>P</u> = <u>2,086.62</u>
<u>Potential Stock Rate for Cathedral allotment = 1,909 AUM's</u>		

The Potential Stocking Rate for the entire Cathedral Allotment as determined by the potential stocking rate



formula is 1,909 AUM's. CRNP portion of the allotment will not have any stocking rate changes, only minor management changes as defined under recommendations section of this document. Factory Bench portion of the allotment is the only area which shows upward trend and should have a smaller reduction in AUM's than the middle desert portion. This is due to water being hauled to change livestock distribution and fewer livestock are grazed during the spring. Current total active preference within the Cathedral Allotment is 2,693 AUM's. Drought conditions have hampered this allotment further back than 1977. Livestock numbers were reduced on a temporary basis in 1990, 1991, 1995-97 due to poor moisture received during the critical growing and fall re-growth periods. Forage production is very low due to these factors. Other factors considered in determining a stocking rate recommendation for the Cathedral Allotment are wildlife use, climate, season of use, vegetative trend, grazing system, water availability, use patterns and progress towards meeting objectives.

## 2. Antelope and Deer Use

The Henry Mountain EIS has established 222 AUM's for future deer use, these AUM's have not been allotted. Deer are few in number and are found mainly near Capital Reef National Park northern boundary and along the river near the Blue Bench allotment. Antelope are found near Factory Butte occasionally and the herd is not showing a growth rate. When elk or antelope populations become constant, AUM's will be allotted.

## 3. Climate

The general area surrounding and including the Cathedral Allotment has been in a drought situation for the past six years. The vegetation has been negatively impacted by the long term drought in this area. Key forage species have produced less forage during the past four years than normal because the deep soil moisture is depleted. The effects of the drought were carefully considered. However, since drought and wet periods are cyclic in the Colorado Plateau Area we must ensure, at a minimum, survival and reproduction of the key forage plants during the drought cycles. Livestock usage has also had an effect on production of forage. A fence was constructed by Capitol Reef National Park along their boundary west of Camper Spring



approximately seven years ago and grazing was not allowed within this portion of the park. Plants have rebounded on the park side of the fence where on the BLM side they have not.

#### **4. Threatened or Endangered Species**

Listed as endangered: Wrights Fishhook Cactus (*Sclerocactus wrightiae*) is found in various locations within Hartnet/Cathedral allotment, most of these locations are within the CRNP. The impacts of cattle grazing on this species is not known at this time. Work is underway to determine what affect grazing may have on this plant. *Sclerocactus wrightiae* grows mostly in the alluvial soils of the Entrada Sandstone formation. During the Standards and Guideline evaluation of Cathedral allotment it was observed that *Sclerocactus Wrightiae* roots were being attacked as a food source by ground squirrels in the Salt Wash/Caine Spring area.

Listed as threatened: Winklers cactus (*Pediocactus winkleri*) is apparently found on both BLM and CRNP lands within the Cathedral allotment. Work is also underway to determine the affects of grazing animals on this species. This species is found mostly in the clay substrates of Morrison Sandstone formation. *Pediocactus dispainii*, which is listed as a endangered species, may also be present, but this has not been located in the allotment.

Habitat for *Gilia tenuis* is present in the Cathedral allotment in the Curtis geological formation, but it's presence is not known at this time. *Gilia tenuis* is listed by BLM and the Park Service as a sensitive species.

#### **5. Grazing System**

There is no established system of grazing in the Cathedral allotment. Jeffery Ranches, Inc., Weslie B. Jeffery, Barlow Pace and Clen Okerlund use the middle desert portion of Cathedral allotment. Barlow Pace uses the Red Desert and Caineville Wash area. John Jackson uses the Factory Bench to the Red Desert. Clen Okerlund has 43 AUM's within the CRNP, he is the only permittee who has AUM's inside and outside the CRNP in Cathedral allotment.



The Red Desert and Caineville Wash areas have been used too heavy during the drought conditions in the past five years. One of the reasons for high use is limited availability of water in the middle portion of the allotment. Camper Springs and Willow Springs are located north of the Red Desert and Caineville Wash. When these springs dry up, water is available in the Red Desert and Caineville Wash due to two wells that are free flowing all year long. The same problem exists in Salt Wash, when the less salty water freezes (Caine Spring is extremely salty), livestock move up to Camper Springs/Willow Springs and then into Caineville Wash area.

Spring grazing can and has dramatically affected the health of plants species in the Cathedral allotment. Livestock will only graze so far from water. In order to control livestock use patterns, a key tool is to control water. In this allotment the water is uncontrolled. There are not sufficient reliable water sources, i.e. springs, reservoirs and ample snow to evenly distribute livestock throughout the allotment from Willow Springs to the CRNP boundary. What really happens is livestock in the spring follow the green feed just so far away from water. In doing so they graze through at a time when the seed stem has not started to grow or develop which really doesn't damage the plant. Damage to the plant in the spring occurs when the livestock keep coming back to the same area many times. With this repeated grazing of the same plants the seed stem is lost and the plant does not produce seed. Also, depending on how moist the soils are, plants can and are uprooted from the soil. The bottom line is, repeated use of an area causes loss of seed production, damaged root systems, which leads to poor plant vigor and loss of plant density in a short period of time. An example of this can be seen in attachment 10. Therefore, spring grazing must be reduced in Cathedral allotment by either reducing number allowed, time allowed per year or totally closing the allotment.

Under the Standards and Guidelines adopted by the BLM in Utah, Standard #3, states:

**Standard 3. DESIRED SPECIES, INCLUDING NATIVE, THREATENED, ENDANGERED, AND SPECIAL-STATUS SPECIES, ARE MAINTAINED AT A LEVEL APPROPRIATE FOR THE SITE AND SPECIES INVOLVED.**



AS INDICATED BY:

- a.) Frequency, diversity, density, age class, and productivity of desired native species to ensure reproductive capability and survival.
- b.) Habitats connected at a level to enhance species survival.
- c.) Native species re-occupy habitat niches and voids caused by disturbances unless management objectives call for introduction or maintenance of non-native species.
- d.) Habitats for threatened, endangered, a special-status species managed to provide for recovery and move species toward de-listing.
- e.) Appropriate amount, type, and distribution of vegetation reflecting the presence of the Desired Plant Community (where identified) necessary to support ecological processes.

The Standard and Guideline team evaluation indicates that even though the Cathedral allotment as a whole is properly functioning, **Standard 1 (a)(c), Standard 2 (c), Standard 3 (a)(c-e)**, along with **Guideline number 12 are not being met**. The team also found during their evaluation that seed production, plant status, photo synthetic activity, recruitment, nutrient cycles, animal species diversity are in a downward trend leading towards functioning at risk classification. The first step to correct this problem is to reduce the season of use. A complete set of Standards and Guidelines are listed as Attachment 11.

## 6. Crossing (Trailing) Permit

BLM Regulation CFR 4130.6-3 is our authority to issue or deny trailing permits. It states: "A crossing permit **may be issued by the authorized officer to any applicant showing a need to cross the public land or other land under Bureau of Land Management control, or both, with livestock for proper and lawful purposes.** A temporary use authorization for trailing livestock shall contain terms and conditions for the temporary



grazing use that will occur as deemed necessary by the authorized officer to achieve the objective of this part".

Under the act which created Capitol Reef National Park (CRNP) the BLM is mandated by that act to administer grazing on CRNP until such time they are able to do it themselves. Under 43 CFR 4130.6-1 the BLM has the right to issue **the trailing permits** across the park. Currently CRNP issues trailing permits free of charge as a means of knowing who, when and where someone is trailing on park land. The BLM permit also covers park land. Owen L, Terry and Kelley Albrecht, Barlow Pace, Wesley B. Jeffery, Jeffery Ranches, Inc. are permittees who trail in the Cathedral allotment.

During those years in which spring grazing is cut back to allow for regeneration of plant species trailing may or may not be allowed. If it is allowed, terms and conditions will be developed to reflect the condition of the range.

According to BLM handbook H-4130, a trailing permit must be applied for by filling out the Grazing Application - Grazing Schedule, Form 4130-1 or the Annual Grazing Application Form 4130-3a. Crossing use may be combined with authorized use on the **Grazing Bill** and is authorized for the entire fee year, or a temporary permit may be issued each time trailing occurs. A service charge may be assessed for each crossing permit if the permit is not included in the grazing bill.

A temporary use authorization for trailing livestock must contain necessary terms and conditions for the temporary grazing that will occur. The authorization specifies:

1. the minimum distance livestock must travel per day;
2. the number of days allowed for the crossing;
3. the point of entry;
4. the route to be followed;
5. the holdover areas;
6. the point of exit;



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7. any additional terms and conditions needed; and, if needed,
  8. a statement that the authorization pertains to land administered by the BLM and the Grazing Memorandum of Understanding (MOU) with Capitol Reef National Park.

Trailing from the forest boundary through the CRNP, middle desert and down to Caineville and back again is not working as well as it could. An example of this was in the year 1997. Trailing permits were issued by the BLM and CRNP to permittees in which to cross the allotment. These permits were over a time frame from October 28th to November 3rd. Trailing actually lasted until November 6th when livestock reached Hanksville.

Drifting livestock as opposed to those actively trailing causes another problem. When livestock are allowed to drift, they mix with other livestock already in the allotment. It takes more time and/or extra rider or both to sort livestock and then continue on out of the allotment. Some livestock are not sorted out and the permittee has to retrieve their livestock and return them to the allotment. Extra livestock also causes extra trampling, especially around limited water sources.

The only permittee allowed AUM's within the CRNP is Evelyn & Kevin c/o Clen Okerlund. By allowing these permittees to stay more than one day in the CRNP deprived the Okerlund family AUM's which are available to them during any given grazing season. The AUM's available within the CRNP are not always sufficient enough for their livestock numbers.

Trailing permits which are currently on license will be removed from the licenses and will be issued yearly when a permittee requests a trailing permit. The reason for this action is due to the poor trailing practices and poor range condition within the allotment. In the event the allotment is closed, due to poor forage conditions, trailing may or may not be allowed. Terms and conditions will reflect conditions of the allotment.



## 7. Trend

In the Henry Mountain Grazing EIS (may 1983), Appendix 3, Table 1 shows that most of the trend plots were either static or in a downward direction at that time. Plot number one on Factory Bench is the only plots showing any real positive change.

The drought situation in this area has been a major factor affecting vegetative trend over the past several years. The palatable grasses and browse species, weakened by the drought, produced less forage and are much more susceptible to damage by grazing. This level of use during the spring period and during a drought situation is most likely a significant factor in the reduced production of many of the key forage species. The heavier these plants are grazed into the spring period, the less likely the chance that they will have sufficient moisture to regrow after grazing. If the plants do not have any regrowth after spring grazing, they lose vigor, produce less forage the following year, and become even more susceptible to damage by grazing, drought, disease, and/or insects. Therefore, a year with optimum conditions for seed production followed by a year with optimum conditions for seed germination is necessary for reproduction. Grazing has had a negative effect on forage values in the Cathedral Allotment. To see the effect look at forage production within the fenced area (CRNP) about one mile west of Camper Springs and compare it to area north of the road. This fence was constructed about seven years ago. (see Attachment 10)

## 8. Summary of Problems

Cathedral allotment has no reliable water sources. There are no wells/pipelines and few reservoirs able to store water should sufficient moisture fall during any given year to fill one. Springs when they due flow, due so mainly in the winter months. Caine Spring in Salt Wash is high in salt content which is not suitable for livestock or wildlife. When cold weather freeze's the spring areas (completely frozen) livestock either have to wait for the sun to melt the ice or hope there is sufficient snow in the area. Due to limited water supply,



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livestock tend to hang close to the water which creates a distribution problem.

Drought conditions have existed in the Cathedral allotment for many years which are part of the reason why it is in the condition it is today.

During the spring, the same areas are and have been used due to the lack of other water sources. Spring growth can occur as early as March and April depending on what weather conditions were like during the winter months. Once green up starts, livestock tend to continue using the same areas. This does not allow the plants sufficient time to produce seed and amply store root reserves without repeated use.

Salt Wash has been used as a "If all else fails we can use Salt Wash" and it is showing the effects of constant use. T & E species are being attacked by rodents because there is not sufficient food sources. Livestock are eating common reed grass due to the lack of good forage. Three inches of top soil has disappeared due to erosion.

Trailing in the spring occurs when the cool season grasses are producing seed. Livestock in the past have "drifted" through the allotment both in the spring and fall. Drifting is due to the lack of sufficient riders, mainly during the day to control all the livestock. There is no fenced or natural barrier holding area to contain livestock at night.

Overall, the Cathedral allotment is functioning according to Standards and Guidelines, however there are problem areas that need to be better managed.

The 1987 RPS objectives were to:

- a. Maintain 75 percent of the allotment in stable to improving trend.
- b. Reverse the downward trend in 25 percent of the allotment.
- c. Obtain better distribution by improved water development.



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None of these objectives can be met when we have only one trend plot is showing a upward movement and the other six still show static or downward movement!

Permittees will be encouraged to invest in rangeland improvement projects which would enhance their use of the allotment. Range condition was to increase, instead it has stayed static and in some areas are it has declined, therefore we are not meeting management objectives. Water sources need to be developed to better distribute the livestock throughout the allotment. Due to the drought conditions over many years permittee's and the BLM will have to work closely to establish better grazing practices on a yearly basis.

## V. Recommendations

### A. Goals and Objectives

1. Maximum allowable utilization on key species (Indian ricegrass and Sand dropseed) will be 60%. When 60% utilization on current years growth is reached the permittee either moves to a different area or takes his/her livestock home.
2. Temporarily reduce stocking rate in accordance with the potential stocking rate formula calculated in this evaluation (See Attachment 13).
3. Season of Use change to November 1 to March 31, with the exception of John Jackson which will be October 15 to March 31. This will be effective starting the fall grazing period in 1999 through the fall grazing period in the year 2005.
4. Compliance with Utah's Standards and Guidelines.

### B. Grazing Use Recommendations

1. Trailing through BLM and/or CRNP portion of Cathedral Allotment will require a trailing permit with the exception of Clen Okerlund because he has AUM's in both the CRNP and BLM portion of the allotment. Jeffery Ranches, Inc., Weslie



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B. Jeffery and Barlow Pace will require a trailing permit even though they are permittees of Cathedral allotment to cross the CRNP because they do not have grazing privileges in the park. Trailing permits which effect Cathedral allotment must be applied for each spring and fall if livestock are to be trailed. The Terms and Conditions will be applied to all trailing permits. Jeffery Ranches, Inc., Weslie B. Jeffery and Barlow Pace will be affected by (a), (c), (e) and (g). The Albrecht Family will be affected by a-g.

- a. The minimum distance livestock must travel daily will be ten miles;
- b. Four days will be allowed for crossing: One day from the forest boundary to inside the cattleguard (BLM) on the BLM/CRNP boundary. One day from the cattleguard to the sheep corral. One day from the sheep corral to the fence inside the canyon at the head of Caineville Wash. One day from the fence in the canyon to Hanksville. The same time frame is for the reverse direction. There will be no overnight stays in Caineville Wash
- c. The point of entry will be Gray Bench or Caineville/Hanksville (Highway U-24) depending on the direction of travel;
- d. The hold over area will be at the corral south of the road at the head of Salt Wash or Sheep Camp;
- e. The point of exit will be the same as (c);
- f. A rider must be with livestock at all times during daylight hours, trailing will be on the road to and from the canyon leading to Caineville Wash; enough riders must be supplied to keep livestock on the dirt road through Cathedral allotment and out of traffic on Highway U-24;
- g. BLM and/or CRNP will monitor all trailing;

2. A change in the present grazing system. Upper Cathedral Valley (CRNP portion) will be divided into two pastures using the existing old fence lines (within CRNP) which has been



recently been upgraded by CRNP. The fence west of the Gypsum hole road has been repaired and will serve as the east boundary fence for the pasture. The area east of the this fence to the BLM/CRNP boundary (Cattleguard) will and can be used for grazing every three to five years according to CRNP management objectives.

Existing reservoirs will have maintenance work completed by the permittees to allow more efficient gathering of runoff. Before any maintenance work is started, permittees will co-ordinate with the BLM so there will not be any undue an unnecessary degradation during maintenance work. New reservoirs and wells need to be constructed within the allotment for livestock and wildlife, however it will difficult under the new BLM Wildness Inventory and HR 1732.

3. A cattleguard has been installed at the end of Caineville Wash and the fence completed. Also, the boundary fence between Cathedral and Hartnet must be lengthened or repaired so that livestock stay in their proper allotment. Cost of improvements will be shared by BLM and the permittees on their respective portions of the allotment. Fence work needs to be completed as soon as possible to prevent trespass problems. The present plan is for the BLM to supply post and wire, CRNP has made arrangements with the county for their air compressor to drill holes where necessary. Permittees and Keith Durfey will build the fence.

4. The current season of use (October 15 to May 31 - John Jackson) ( November 1 to May 31 - Jeffery Ranches, Inc., Barlow Pace, Clen Okerlund) (November 1 to February 28 - Weslie B. Jeffery) in the Cathedral Allotment will be shortened to to reflect no spring use past March 31 because of poor range condition. Many times weather conditions occur (warmth/moisture) which allows for plant growth in late October. When we have moisture years like 1996, the allotment should not be used until the plants go dormant in the fall.

5. Permittees and BLM personnel will visit the allotment to look for and prevent large concentrations of livestock in any one area for an extended period, specifically water locations and riparian areas and areas of constant heavy use. (Attachment 2).



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6. The livestock operators will be required to evenly distribute livestock based on water, snow and range condition. If, during any given year, forage is available but adequate water is not, permittees will either provide water or remove the cattle from the allotment. Similarly, once key species use (Indian ricegrass) has reached objective levels (60% of current years growth) livestock will be removed from these areas. If BLM personnel determine that resource damage is occurring, livestock will be removed from the allotment.

7. When moisture levels (Evaluation Period) fall below the mean critical growing season levels on a given year, that fall grazing & trailing levels could be reduced. In a year where the moisture levels during the Critical growing season and the fall re-growth period (March 1 to October 31) do not reach 3.73" (mean of both critical & fall regrowth), grazing and trailing will be stopped for the upcoming grazing year.

8. Continue all current monitoring studies. Install additional photo points in areas where cattle use can be shown (Camper Spr., Willow Spr., Sheep Corral Flat & Salt Wash) especially in those areas where cattle use is the heaviest. (See Attachment 3). Photographs will be taken every three years. At least three enclosures will be built by BLM to monitor the effect of no grazing (how fast it would recover without livestock use). One will be at Trend Plot one in the middle desert, one will be near Willow Spring and third will be at Trend Plot one on Factory Bench. Caineville Wash at U-24 to the new cattleguard will be closed to grazing with the exception of twice a year for trailing.

9. Camper Springs, Willow Springs and the spring at the head of Salt Wash near the main road (Sheep corral) in Cathedral Valley will be fenced, salt cedars will be burned and sprayed (Winter of FY 2000) the next spring to control re-growth by the BLM. Water development will have to occur at the same time the area is fenced. This should allow moisture levels to rise in the spring area. When water levels rise sufficiently, water then could be put in a trough outside the fence. The spring south of Camper Spring on CRNP can not be developed to supply water for both inside and outside the fence.



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10. Permittees must take a more active role in developing water and maintenance of current reservoir. (Ideas, labor, clean reservoir, drilling a well on state land) Permittee contributions will continue to be necessary for maintenance & reconstruction of existing projects and new range projects.

11. Additional Rain Gauges should be established to show rain patterns during the year, just where is the rain and how much has fallen. These patterns will in a sense map area where forage could be found.

12. Cathedral Allotment trend will be read again in 1999 and all data re-evaluated in 2005.

13. Actual Use Reports will be completed and turned in 15 days after winter period (April 15) by each permittee after the livestock are removed from the allotment.

14. Re-design corral at the south side of the road, across from the spring at the head of Salt Wash (Sheep Corral) so that livestock can be held overnight (Electric Fencing or removable panels) by FY2000. This corral could be removed and relocate near the old corral north of the road. By doing so, this would put the corral out of public view and reduce public pressure on how some of the public view grazing on public lands which includes the CRNP.

15. When sufficient water is located, divide the area between Willow Springs and the CRNP boundary fence into three pastures, using Salt Wash as a separate pasture once it recovers. (Costs will be shared by permittees and the BLM)

16. Potential stocking rate formula calls for a reduction of **784 AUM's** in Cathedral allotment. The EIS called for a 632 AUM reduction in 1983. The reduction in AUM's will be in the middle portion and Factory Bench area of the allotment. **Fifty nine AUM's will come from the Factory Bench area which will affect the John Jackson. This will leave 725 AUM's to be reduced among Jeffery Ranches, Inc., Mr. Leslie B. Jeffery, Mr. Clen & Evelyn Okerlund and Mr. Barlow Pace.** The individual reduction was calculated by percentage of AUM's held by each permittee in the use area. The AUMs held by Mrs. Okerlund inside CRNP were subtracted before any calculations because the CRNP portion of the



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allotment does not warrant any reduction. This leaves **Mrs. Okerlund (Clen Okerlund)** with 18.9% of the AUM's or a **140 AUM reduction**. **Mr. Barlow Pace** holds 2.9% of the AUM's or a **22 AUM reduction**. **Jeffery Ranches, Inc.** holds 62.3% of the AUM's or a **451 AUM reduction**. **Mr. Weslie B. Jeffery** holds 15.5% of the AUM's or a **122 AUM reduction** (See Attachment 13). Reductions in grazing allocations will be carried as voluntary non-use for the term October 15, 1999 to March 31, 2005. A new carrying capacity will be calculated for the period beyond 2005 based on the allotment evaluation.

Livestock numbers, from November 1 to March 31 of any given year will be as follows: Mr. Okerlund may run 57 head of livestock, Mr. Barlow Pace may run 6 head of livestock, Jeffery Ranches, Inc. may run 199 head of livestock, Weslie B. Jeffery may run 51 head of livestock from November 1 to February 28. John Jackson may run 106 head of livestock from October 15 to March 31. The length of days may be shortened in order to have more livestock on the allotment as long as they do not exceed authorized active use AUM totals.

17. Percent Federal Range will remain in effect until the State supplies the BLM with current up to date lease belonging to the permittees. After this information is received, percent federal range will be recalculated.



**C. Recommended Monitoring Plan**

<u>Type</u>	<u>Method</u>	<u>Frequency</u>
Actual Use	Actual Use Reports submitted by permittees; substantiated by periodic livestock counts. Wildlife observation forms.	Annually  Ongoing
Supervision	Visits to each pasture and watering site.	At least monthly during the grazing season.
Utilization	Key forage plant method Use Pattern Map.	Annually within 15 days of livestock removal.
Precipitation	Cathedral & Hartnet Rain Gauges	Assigned dates
Trend	5X5 Cover plots, Photos, Quad. Frequency.	1999
Allotment Evaluation	Analysis, Interpretation, Evaluation & Recommendations	2005



VI. Consultation

Gary L. Hall, Assistant Field Manager

Leroy Smalley, Supervisory Range Conservationist, HMRA

Matt Obradovich, Wildlife Biologist, HMRA

Dave Henderson, Associate Field Manager

Capital Reef National Park

Cathedral Permittee's

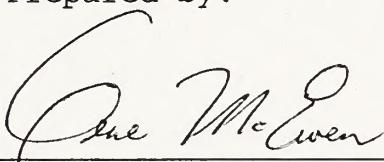
Evelyn Okerlund

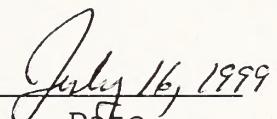
Barlow Pace

John & George Jackson

Jeffery Ranches, Inc.

VII. Prepared by:

  
\_\_\_\_\_  
Gene McEwen, Range Management Specialist

  
\_\_\_\_\_  
Date



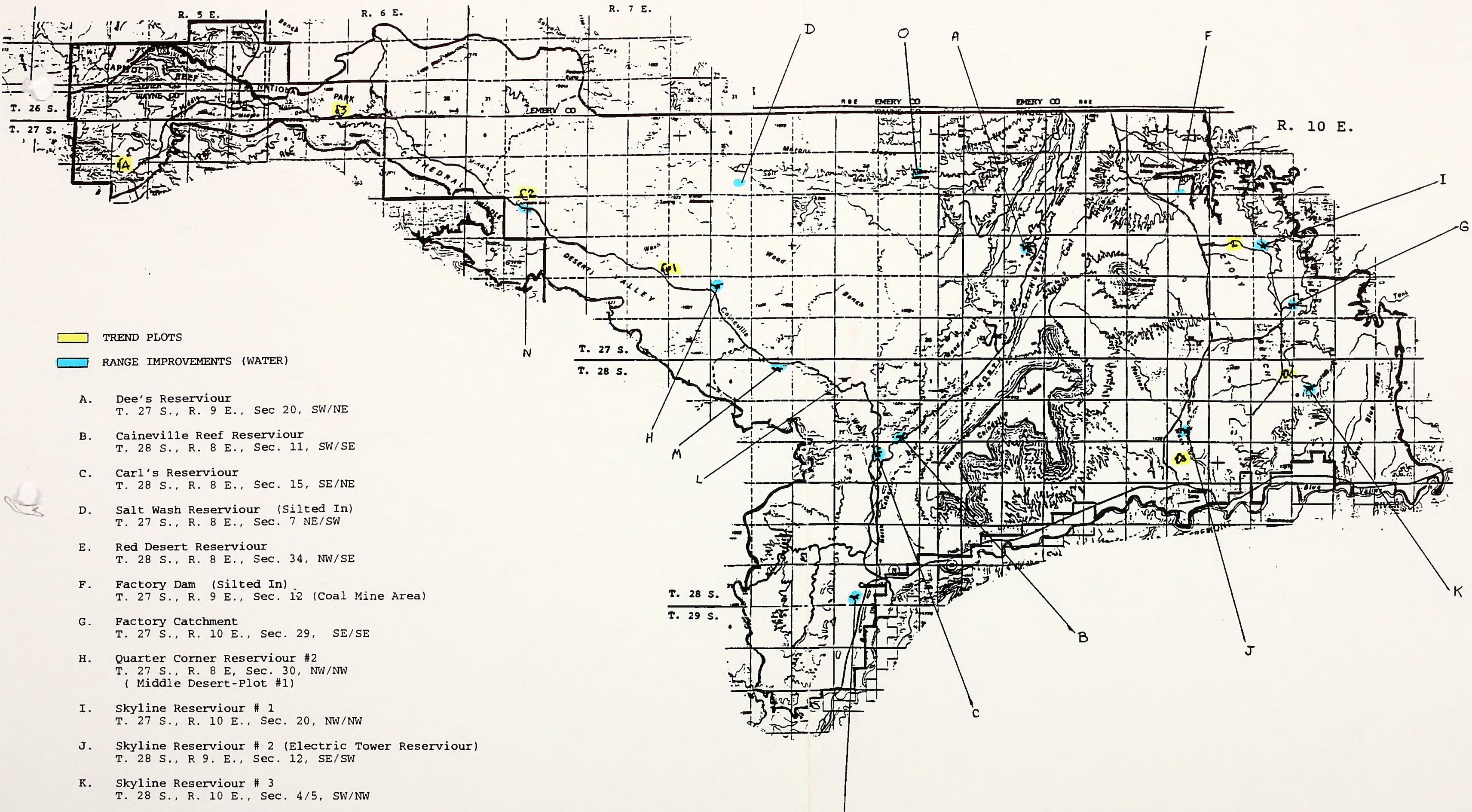
## VIII. Approved by:

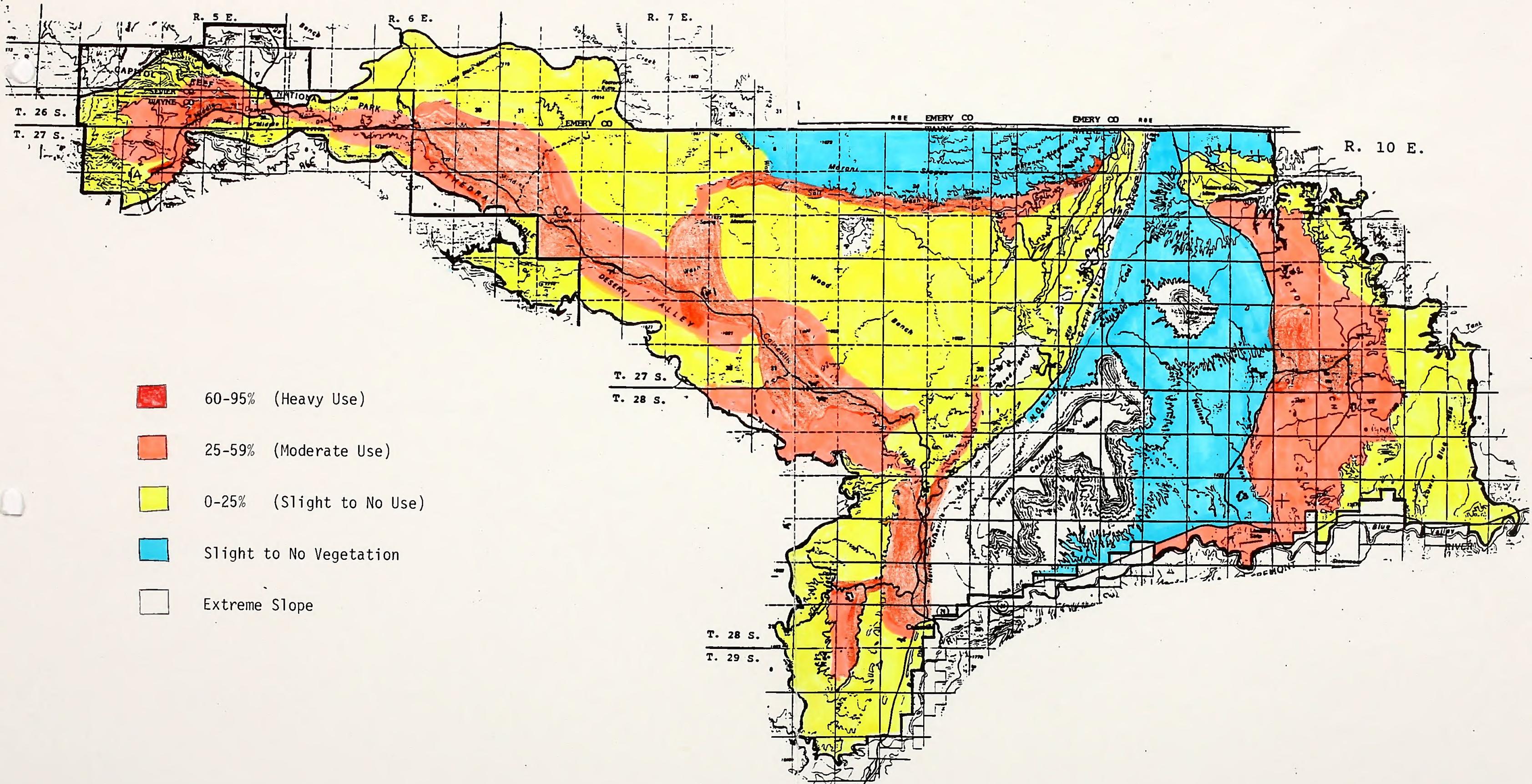
Jerry W. Goodman  
Jerry W. Goodman, Field Manager

8-3-99

Date







# Utilization Map

Actual Use

Jackson, John & George (589)

530

4 of 1

Grazing <u>Year</u>	Total Available AUM's	Agreed Active AUM's	Fall <u>AUM's</u>	Spring <u>AUM's</u>	Total AUM's USED
1989-90	235	232	88	144	232 -
1990-91	235	184	88	144	232 -
1991-92	235	233	70	114	184 -
1992-93	589	588	367	221	588
1993-94	589	588	367	221	588
1994-95	589	588	367	221	588
1995-96	589	588	367	221	588
1996-97	589	213	193	20	213 -
1997-98	589	588	367	221	588

Jeffery Ranches, Inc.

(1262)

121

7 of 11

Grazing <u>Year</u>	Total Available AUM's	Agreed Active AUM's	Fall <u>AUM's</u>	Spring <u>AUM's</u>	Total AUM's USED
1987-88	1262	1110	631	479	1110
1988-89	1262	1510	605	903	1508
1989-90	1262	685	93	592	685 -
1990-91	1262	705	273	432	705 -
1991-92	1262	1120	546	574	1120
1992-93	1262	683	230	453	683 -
1993-94	1262	687	234	453	687 -
1994-95	1262	712	0	712	712 -
1995-96	1262	984	783	201	984 -
1996-97	1262	407	324	83	407 -
1997-98	1262	1121	753	368	1121



Okerlund (433) 227

Grazing <u>Year</u>	Total Available <u>AUM's</u>	Agreed Active <u>AUM's</u>	Fall <u>AUM's</u>	Spring <u>AUM's</u>	Total AUM's <u>USED</u>	11
1987-88	433	242	46	196	242-	
1988-89	433	317	200	117	317-	
1989-90	433	182	129	53	182-	
1990-91	433	163	95	68	163-	
1991-92	433	114	0	114	114-	
1992-93	433	106	0	106	106-	
1993-94	433	122	0	122	122-	
1994-95	433	100	0	100	100-	
1995-96	433	58	0	58	58-	
1996-97	433	43	0	43	43-	
1997-98	433	130	0	130	130-	

Barlow Pace (60) 33

Grazing <u>Year</u>	Total Available <u>AUM's</u>	Agreed Active <u>AUM's</u>	Fall <u>AUM's</u>	Spring <u>AUM's</u>	Total AUM's <u>USED</u>	6 of 11
1987-88	60	60	0	60	60	
1988-89	60	60	0	60	60	
1989-90	60	34	0	34	34-	
1990-91	60	30	0	30	30-	
1991-92	60	60	0	60	60	
1992-93	60	60	0	60	60	
1993-94	60	60	0	60	60	
1994-95	60	42	0	42	42-	
1995-96	60	0	0	0	0-	
1996-97	60	0	0	0	0-	
1997-98	60	0	0	0	0-	



J. Alan Taylor (314)

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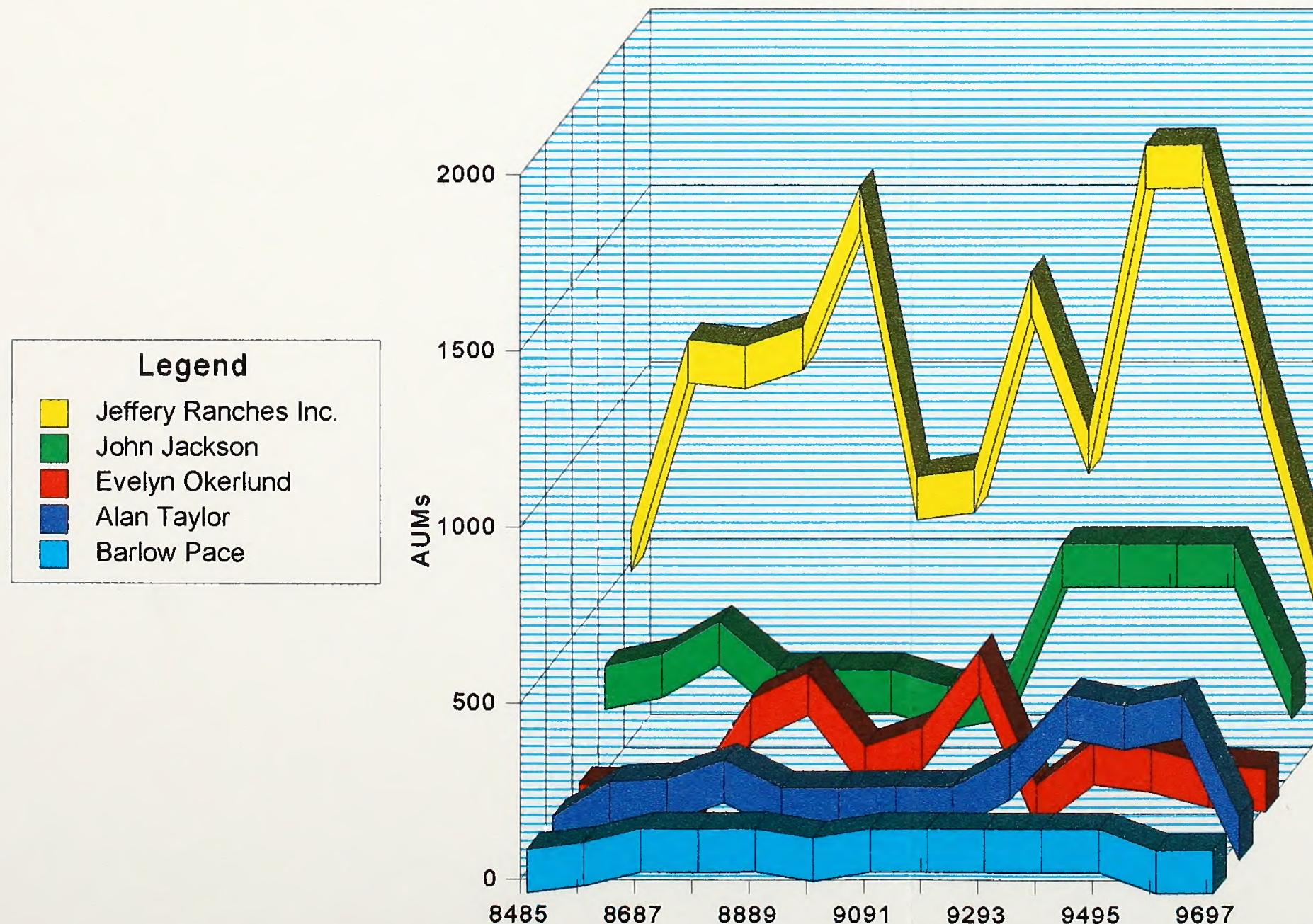
Grazing <u>Year</u>	Total Available <u>AUM's</u>	Agreed Active <u>AUM's</u>	Fall <u>AUM's</u>	Spring <u>AUM's</u>	Total AUM's <u>USED</u>
1987-88	349	163	163	0	163
1988-89	349	83	0	83	83
1989-90	349	83	0	83	83
1990-91	349	87	0	87	87
1991-92	349	86	0	0	0
1992-93	349	175	76	99	175
1993-94	349	347	347	0	347
1994-95	349	315	315	0	315
1995-96	349	0	0	0	0
1996-97	349	0	0	0	0
1997-98	349	249	249	0	249

9 of 11

**Attachment 3**



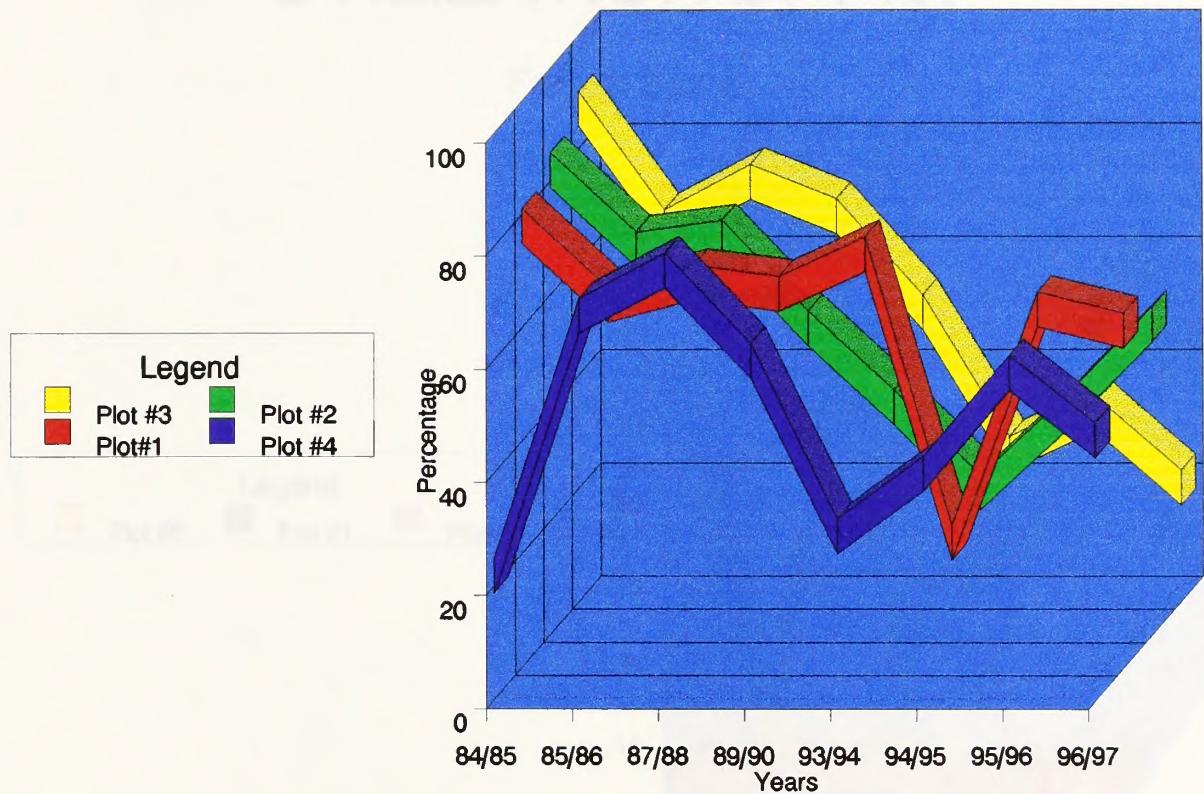
# ACTUAL USE as Reported by Permittee



Attachment 3a

# UTILIZATION by PLOT

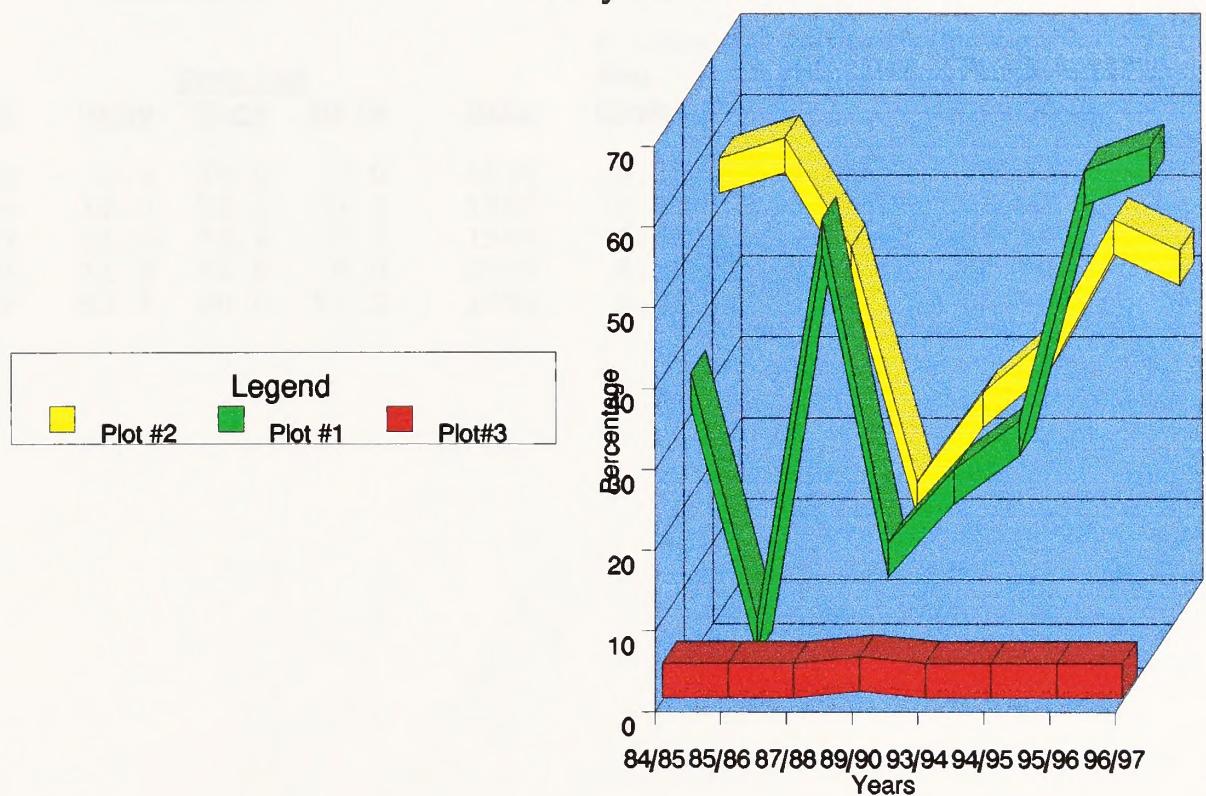
Middle Desert





# UTILIZATION by Plot

Factory Bench





## T-1 (Factory Bench)

5 X 5 Cover

<u>Year</u>	<u>Trend Index</u>	No. of Mature Plants (Key Species only)		
1979	32.23	5	Orhy	50 Hija 0 Spcr
1980	45.16	6	Orhy	35 Hija 0 Spcr
1989	54.93	2	Orhy	45 Hija 3 Spcr
1993	64.11	11	Orhy	36 Hija 1 Spcr
1996	57.50	8	Orhy	23 Hija 0 Spcr

Photo's indicate a static/slight upward trend

<u>Date</u>	<u>FREQUENCY</u>			<u>Date</u>	<u>POINT COVER</u>		
	<u>Orhy</u>	<u>Spqr</u>	<u>Hija</u>		<u>% Live Veg.</u>	<u>% Litter Cover</u>	<u>% Rock &amp; Bare Ground</u>
1979	6.0	55.0	0.0	1979	8.20	4.80	86.90
1980	12.0	55.0	0.0	1980	13.10	8.90	78.02
1989	11.5	70.6	7.7	1989	6.80	2.90	88.30
1993	31.0	62.0	0.0	1993	6.50	5.90	87.80
1996	52.5	00.0	57.5	1996	0.00	3.50	96.50



## T-2 (Factory Bench)

5 X 5 Cover

<u>Year</u>	<u>Trend Index</u>	<u>No. of Mature Plants (Key Species only)</u>			
1979	99.52	0	Orhy	85	Hija
1980	117.39	1	Orhy	84	Hija
1989	116.08	1	Orhy	121	Hija
1993	105.69	4	Orhy	112	Hija
1996	89.65	9	Orhy	151	Hija

Photo's indicate a slight upward trend

<u>FREQUENCY</u>			<u>POINT COVER</u>				
<u>Date</u>	<u>Species</u>			<u>% Live Veg. Cover</u>	<u>% Litter</u>	<u>% Rock &amp; Bare Ground</u>	
	<u>Orhy</u>	<u>Spcr</u>	<u>Hija</u>				
1979	0.0	00.0	33.0	1979	2.33	5.05	92.62
1980	17.2	00.0	54.0	1980	9.10	8.57	82.33
1989	17.6	00.0	69.0	1989	5.32	.75	93.93
1993	31.0	00.0	62.0	1993	3.39	3.05	93.56
1996	42.0	00.0	62.0	1996	0.00	0.00	100.00

<u>Date</u>	<u>Orhy</u>	<u>Spcr</u>	<u>Hija</u>	<u>Date</u>	<u>% Live Veg. Cover</u>	<u>% Litter</u>	<u>% Rock &amp; Bare Ground</u>
1979	0.0	00.0	33.0	1979	2.33	5.05	92.62
1980	17.2	00.0	54.0	1980	9.10	8.57	82.33
1989	17.6	00.0	69.0	1989	5.32	.75	93.93
1993	31.0	00.0	62.0	1993	3.39	3.05	93.56
1996	42.0	00.0	62.0	1996	0.00	0.00	100.00



## T-3 (Factory Bench)

5 X 5 Cover

<u>Year</u>	<u>Trend Index</u>	No. of Mature Plants (Key Species only)					
1979	3.42	0	Orhy	7	Atco	144	Halg
1980	9.19	0	Orhy	88	Atco	**	Halg
1989	16.75	0	Orhy	17	Atco	**	Halg
1993	5.87	0	Orhy	14	Hija	**	Halg
1996	2.30	0	Orhy	0	Hija	**	Halg

\*\* No Reading Taken

Photo's indicate a static/slight upward trend

FREQUENCYPOINT COVER

<u>Date</u>	<u>Species</u>			<u>Date</u>	<u>% Live Veg. Cover</u>	<u>% Litter</u>	<u>% Rock &amp; Bare Ground</u>
	<u>Orhy</u>	<u>Spcr</u>	<u>Hija</u>				
1979	00.0	45.0	00.0	1979	2.25	1.18	96.57
1980	00.0	78.0	00.0	1980	7.03	2.16	90.80
1989	00.0	10.0	00.0	1989	16.45	.30	83.25
1993	00.0	5.0	95.0	1993	3.59	1.36	95.04
1996	Not read due to drought, couldn't tell if plants were alive or dead.						



## T-1 (Middle Desert)

5 X 5 Cover

<u>Year</u>	<u>Trend Index</u>	No. of Mature Plants (Key Species only)			
1979	9.50	0	Orhy	0	Hija
1980	53.00	0	Orhy	0	Hija
1989	103.90	12	Orhy	0	Hija
1993	36.66	10	Orhy	0	Hija
1996	92.62	14	Orhy	2	Hija
					Spcr

Photo's indicate a downward trend

FREQUENCYPOINT COVER

<u>Date</u>	<u>Species</u>			<u>Date</u>	% Live Veg. Cover	% Litter	% Rock & Bare Ground
	<u>Orhy</u>	<u>Spai</u>	<u>Hija</u>				
1979	4.0	00.0	00.0	1979	2.00	1.00	97.00
1980	43.5	6.0	2.0	1980	1.00	9.00	90.00
1989	76.9	00.0	13.3	1989	0.00	7.00	93.00
1993	60.0	3.5	4.0	1993	.50	0.00	99.50
1996	52.5	0.0	8.6	1996	0.00	0.00	98.50

## T-2 (Middle Desert)

5 X 5 Cover

<u>Year</u>	<u>Trend Index</u>	No. of Mature Plants (Key Species only)			
1979	29.72	2	Orhy	36	Hija
1980	115.80	6	Orhy	22	Hija
1981		<u>This trend plot was destroyed by mining</u>			

Photo's indicate a static trend.

FREQUENCYPOINT COVER

<u>Date</u>	<u>Species</u>			<u>Date</u>	% Live Veg. Cover	% Litter	% Rock & Bare Ground
	<u>Orhy</u>	<u>Spcr</u>	<u>Hija</u>				
1979	10.4	00.0	48.1	1979	4.00	4.00	87.00
1980	13.5	10.0	52.0	1980	4.00	9.00	92.00



## T-3 (Middle Desert)

5 X 5 Cover

<u>Year</u>	<u>Trend Index</u>	No. of Mature Plants <u>(Key Species only)</u>		
1979	56.04	2	Orhy	53 Hija 5 Spcr
1989	41.31	0	Orhy	30 Hija 4 Spcr
1993	68.26	7	Orhy	21 Hija 12 Spcr
1996	62.50	5	Orhy	25 Hija 3 Spar

Photo's indicate a static upward trend

FREQUENCYPOINT COVER

<u>Date</u>	<u>Species</u>			<u>Date</u>	<u>Cover</u>	% Live	% Litter	% Rock
	<u>Orhy</u>	<u>Spcr</u>	<u>Hija</u>			Veg.	_____	& Bare
1979	00.0	1.8	41.5	1979		2.58	2.98	94.45
1989	00.0	5.6	41.3	1989		4.98	3.68	91.35
1993	5.8	1.8	41.0	1993		1.80	3.20	95.00
1996	45.5	0.0	20.5	1996		15.00	5.52	86.93

## T-4 (Middle Desert)

5 X 5 Cover

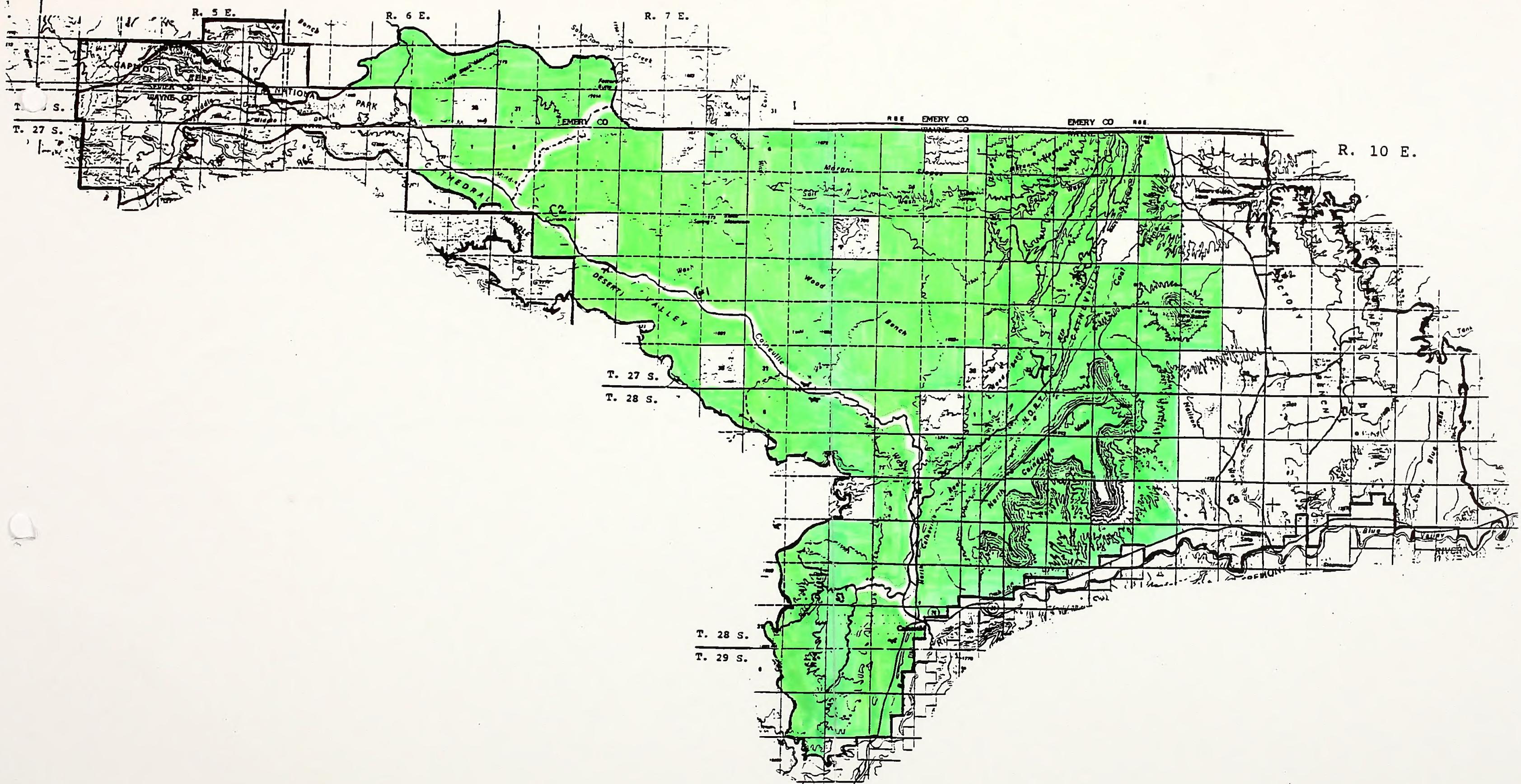
<u>Year</u>	<u>Trend Index</u>	No. of Mature Plants <u>(Key Species only)</u>		
1979	98.04	1	Orhy	0 Bogr 27 Spai
1993	111.66	6	Orhy	114 Bogr 40 Spai
1996	32.65	1		29 Bogr 4 Spai

Photo's indicate a downward trend

FREQUENCYPOINT COVER

<u>Date</u>	<u>Species</u>			<u>Date</u>	<u>Cover</u>	% Live	% Litter	% Rock
	<u>Orhy</u>	<u>Spai</u>	<u>Bogr</u>			Veg.	_____	& Bare
1979	2.0	33.0	34.0	1979		2.63	5.90	87.80
1993	18.0	37.5	12.7	1993		9.07	3.13	91.40
1996	29.0	63.0	21.0	1996		1.99	17.41	80.59

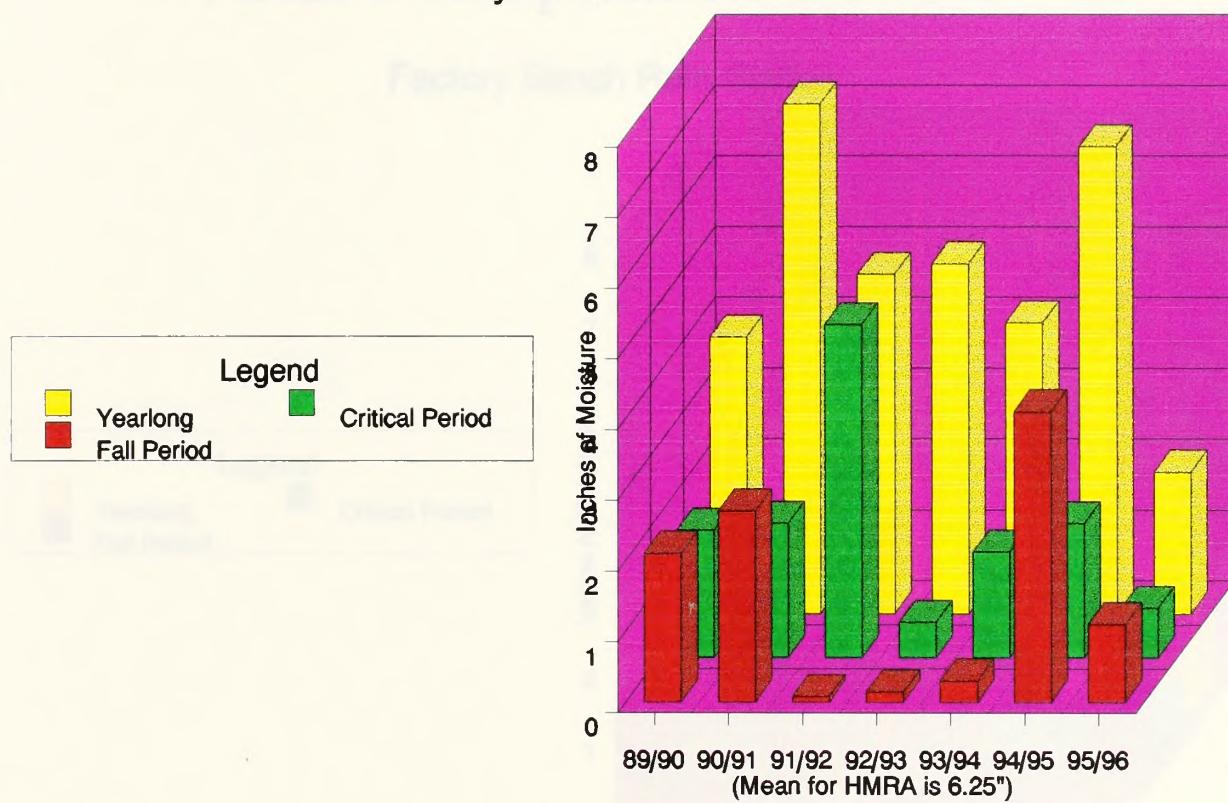




HR 1500

# Precipitation Levels for Evaluation

Factory Bench Rain Station

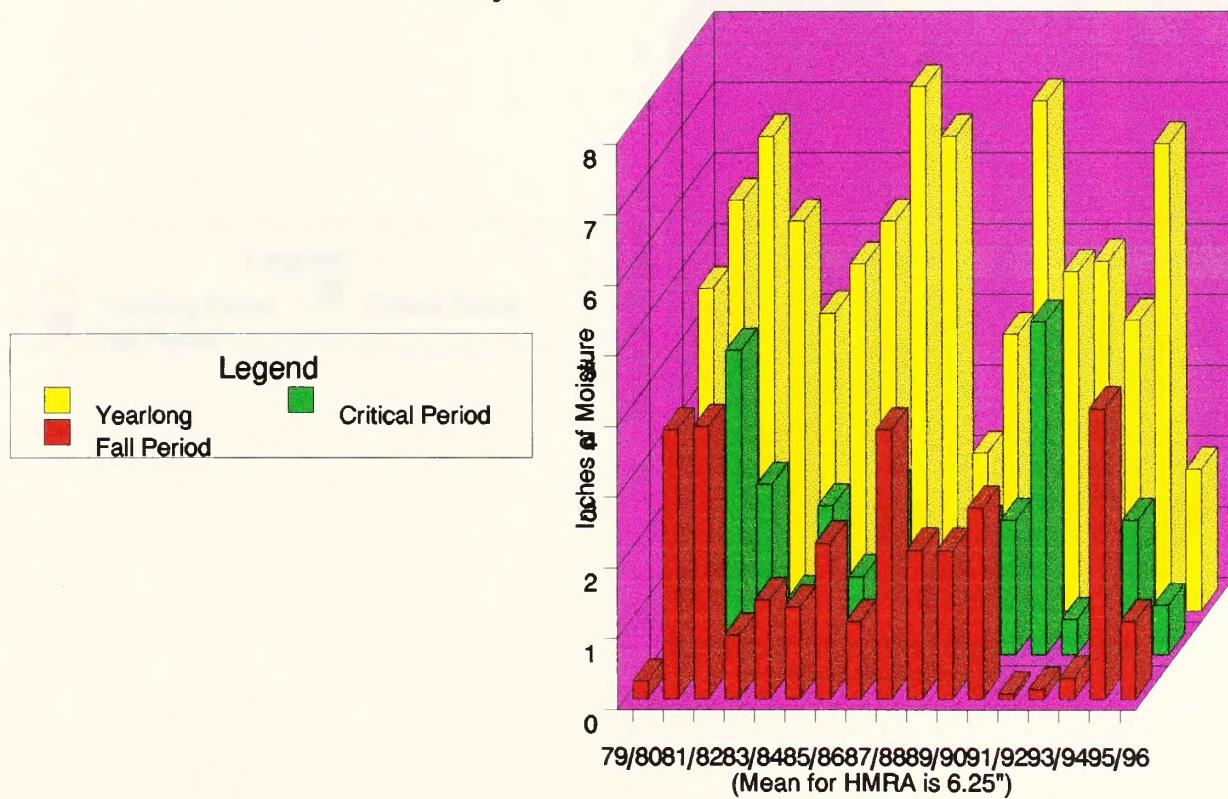




# Precipitation Levels for Evaluation

## Total Precipitation Levels

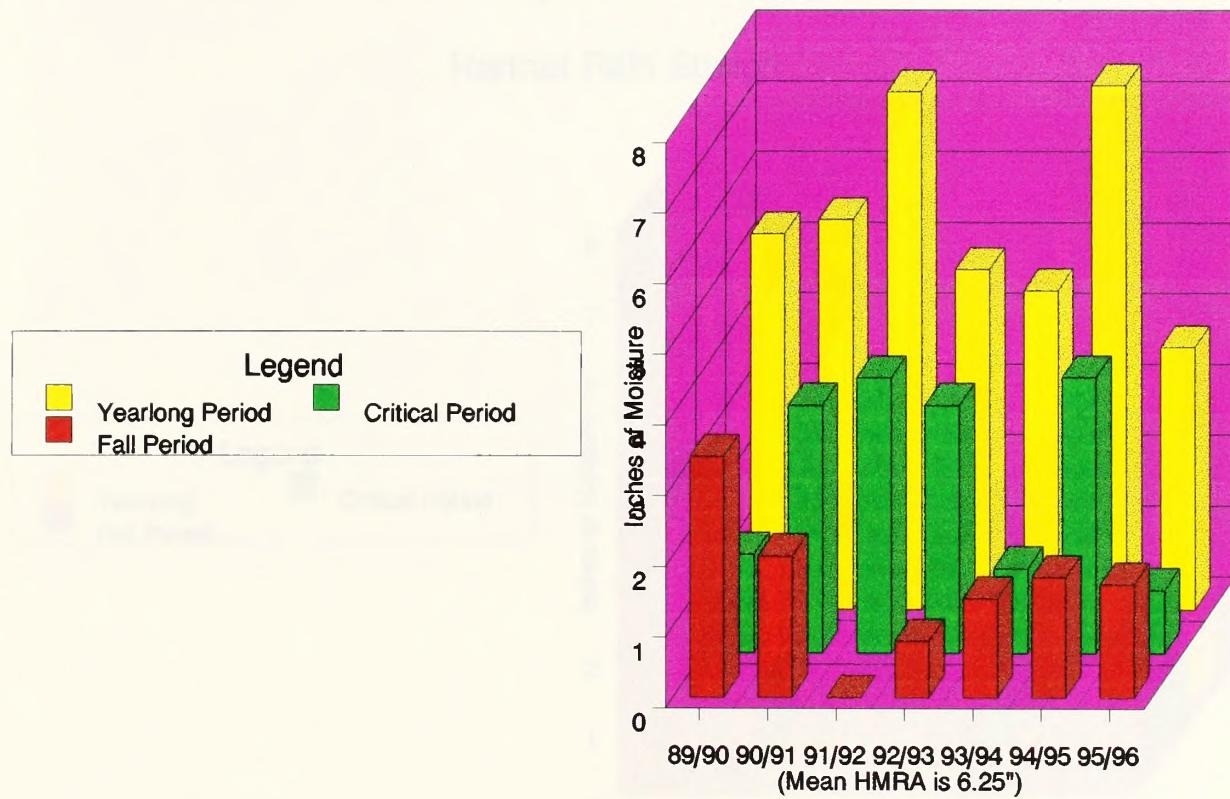
Factory Bench Rain Station





# Precipitation Levels for Evaluation

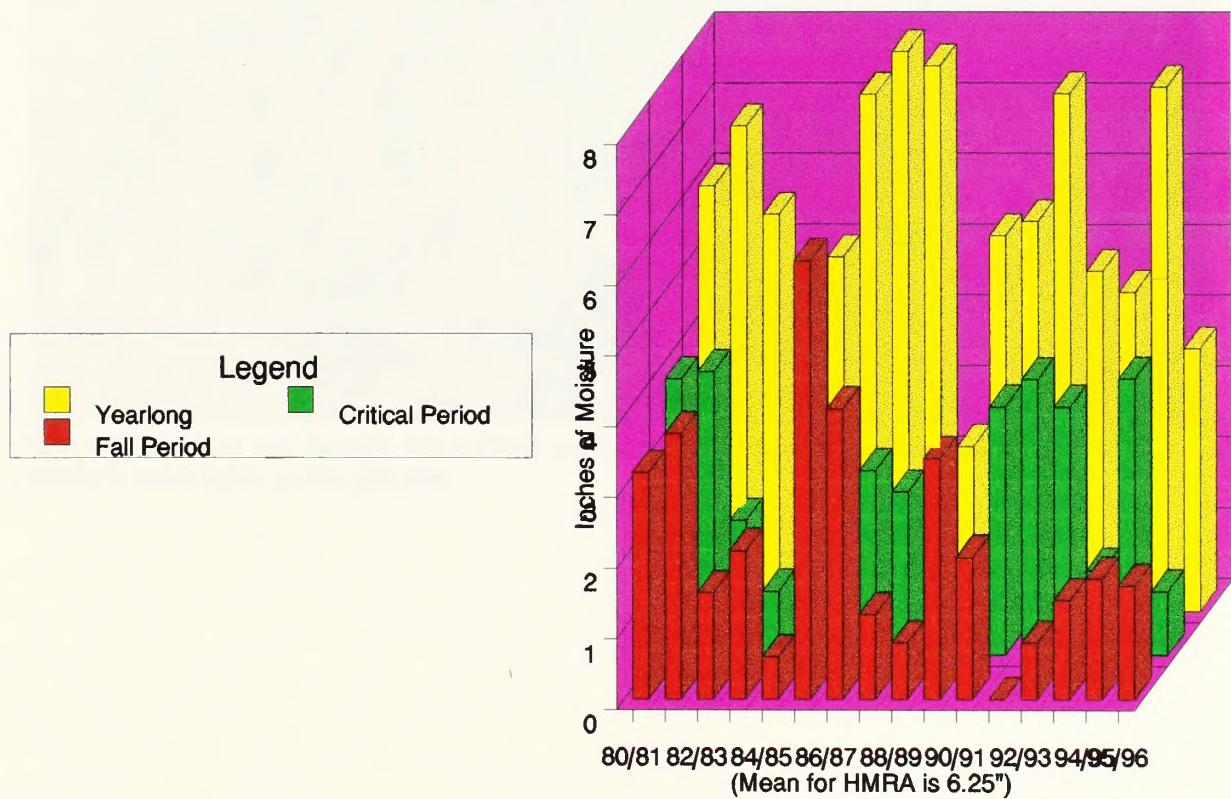
Hartnet Rain Station





# Total Precipitation Levels

Hartnet Rain Station







This view is looking east, the right side is CRNP and has not been grazed in approximately 8 years. Orhy density is much higher on the right side.



A 8 hour old *C. elegans* worm resting on a textured surface. The worm is much longer on the right side than the left side.



This photo is looking west. The left side is ungrazed CRNP land and BLM land is on the right.





This photo is looking south. Beyond the fence is ungrazed CRNP lands. Notice density of plants beyond the fence.



# WILD & SCENIC RIVER ACT





# **STANDARDS FOR RANGELAND HEALTH ON THE BLM LANDS IN UTAH**

**Standard 1 : Upland soils exhibit permeability and infiltration rates that sustain or improve site productivity, considering the soil type, climate and landform.**

As indicated by

- a. Sufficient cover and litter to protect the soil surface from excessive water and wind erosion, promote infiltration, detain surface flow, and retard soil moisture loss by evaporation.
- b. The absence of indicators of excessive erosion as rills, soil pedestals, and actively eroding gullies.
- c. The appropriate amount, type, and distribution of vegetation reflecting the presence of 1) the Desired Plant Community (DPC), where identified in a land use plan conforming to these Standards, or 2) where the DPC is not identified, a community that equally sustains the desired level of productivity and proper functioning ecological condition.

**Standard 2: Riparian and wetland area are in properly functioning condition, stream channel morphology and functions are appropriate to soil type, climate and landform.**

As indicated by

- a. Streambank vegetation consisting of, or showing a trend toward, species with root masses capable of withstanding high streamflow events. Vegetative cover adequate to protect stream banks and dissipate streamflow energy with high-water flows, protect against accelerated erosion, capture sediment, and provide for groundwater recharge.
- b. Vegetation reflecting: Desired Plant Community, maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition, high vigor, large woody debris when site potential allows, and providing food, cover, and other habitat needs for dependent animal species.
- c. Revegetating point bars, lateral stream movement associated with natural sinuosity, channel width, depth, pool frequency and roughness appropriate to landscape position.



- d. Active floodplain.

**Standard 3:** Desired species, including native, threatened, endangered, and special-status species, are maintained at a level appropriate for the site and species involved.

As indicated by

- a. Frequency, diversity, age class, and productivity of desired native species necessary to ensure reproductive capability and survival.
- b. Habitats connected at a level to enhance species survival.
- c. Native species re-occupy habitat niches and voids caused by disturbances unless management objectives call for introduction or maintenance of non-native species.
- d. Habitats for threatened, endangered, and special-status species managed to provide for recovery and move species toward de-listing.
- e. Appropriate amount, type, and distribution of vegetation reflecting the presence of 1) the Desire Plant Community (DPC), where identified in a land use plan conforming to these Standards, or 2) where the DPC is not identified, a community that sustains the desired level of productivity and properly functioning ecological processes.

**Standard 4:** BLM will apply and comply with water quality standards established by the State of Utah (r.317-2) and the Federal Clean Water and Safe Drinking Water Act. Activities on BLM Lands will fully support the designated beneficial uses described in the Utah Water Quality Standards (r317-2) for Surface and Groundwater.

As indicated by

- a. Measurement of nutrient loads, total dissolved solids, chemical constituents, fecal coliform, water temperature and other water quality parameters.
- b. Macro-invertebrate communities that indicate water quality meets aquatic objectives.



# **GUIDELINES FOR GRAZING MANAGEMENT ON BLM LANDS IN UTAH**

1. Grazing management practices will be implemented that:
  - a. Maintain sufficient residual vegetation and litter on both upland and riparian sites to protect the soil from wind and water erosion and support ecological functions.
  - b. Promote attainment or maintenance of proper functioning condition riparian/wetland areas, appropriate stream channel morphology, desired soil permeability and infiltration and appropriate soil conditions and kinds and amount of plants and facilitate reproduction and maintenance of desired plants to the extent natural conditions allow.
  - c. Meet the physiological requirements of desired plant and facilitate reproduction and maintenance of desired plants to the extent natural conditions allow.
  - d. Maintain viable and diverse populations of plants and animals for the site.
  - e. Provide or improve, within the limits of site potentials, habitat for Threatened or Endangered Species.
  - f. Avoid grazing management conflicts with other species that have the potential of becoming protected or special status species.
  - g. Encourage innovation, experimentation and the ultimate development of alternative to improve rangeland management practices, and
  - h. Give priority to rangeland improvement projects and land treatment that offer the best opportunity for achieving the Standards.
2. Any spring and seep developments will be designed and constructed to protect ecological process and functions and improve livestock, wildhorse, and wildlife distribution.
3. New rangeland projects for grazing will be constructed in a manner consistent with the Standards. Considering economic circumstances and site limitations, existing rangeland projects and facilities that conflict with the achievement or maintenance of the Standards will be relocated and/or modified.



4. Livestock salt blocks and other nutritional supplements will be located away from riparian/wetland area or other permanently located, or other natural water sources, it is recommended that the locations of these supplements will be moved every year.
5. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands non-intrusive, non-native plants species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) can not achieve ecological objectives as well as non-native species, and/or (d) cannot compete with already established non-native species.
6. When rangeland manipulations are necessary, the best management practices, including biological processes, fire and intensive grazing, will be utilized prior to the use of chemical or mechanical manipulations.
7. When establishing grazing practices and rangeland improvements, the quality of the outdoor recreation experience is to be considered. Aesthetic and scenic values, water, campsites and opportunities for solitude are among those considerations.
8. Feeding of hay and other harvested forage (which does not refer to miscellaneous salt, protein, and other supplements), for the purpose of substituting for inadequate natural forage will not be conducted on BLM Lands other than in (a) emergency situations where no other resource exists and animal survival is in jeopardy, or (b) situations where the Authorized Officer determines such a practice will assist in meeting a standard or attaining a management objective.
9. In order to eliminate, minimize, or limit the spread of noxious weeds, (a) only hay cubes, hay pellets, or certified weed-free hay will be fed on BLM Lands, and (b) reasonable adjustments in grazing methods, methods of transport, and animal husbandry practices will be applied.
10. To avoid contamination of water sources and inadvertent damage to non-target species, aerial application of pesticides will not be allowed within 100 feet of a riparian/wetland area unless the product is registered for such use by EPA.
11. **On rangelands where a Standard is not being met, and conditions are moving toward meeting the Standard, grazing may be allowed to continue. On Lands where a Standard is not being met. Conditions are not improving toward meeting the Standard or other management objectives, and livestock grazing is deemed responsible, administrative action with regard to livestock will be taken by the Authorized Office pursuant to CFR 4180.2 (c).**



12. Where it can be determined that more than one kind or grazing animal is responsible for failure to achieve a Standard, and adjustments in management are required, those adjustments will be made to each kind or animal, based on interagency cooperation as needed, in proportion to their degree of responsibility.
13. Rangelands that have been burned, reseeded or otherwise treated to alter vegetative composition will be closed to livestock grazing as follows: (1) burned rangelands, whether by wildfire or prescribed burning, will be ungrazed for a minimum of one complete grazing season following the burn; (2) rangelands that have been reseeded or otherwise chemically or mechanically treated will be ungrazed for a minimum of two complete growing seasons following treatment.
14. Conversions in kind of livestock (such as from sheep to cattle) will be analyzed in light of Rangeland Health Standards. Where such conversions are not adverse to achieving a Standard, or they are not in conflict with BLM land use plans, the conversion will be allowed.



**POTENTIAL STOCKING RATE**

<u>Actual Use</u>	$\times$	<u>Potential Actual Use</u>
Average/Weighted Average Utz.		Desired Average Utz.

Average/Weighted Average Utz. is the Average or Weighted Average Utilization for a allotment over the evaluation period, in the case of Cathedral it is 46.876666. Weighted Average is calculated by averaging the utilization of a given area and multiplying it by the percent of time livestock spend grazing that area.

<u>1988-89</u>	<u>1989-90</u>	<u>1993-94</u>
<u>1753 AUMs</u> X <u>P</u>	<u>1151 AUMs</u> X <u>P</u>	<u>1804 AUMs</u> X <u>P</u>
46.876666      60%	46.876666      60%	46.876666      60%
<b>P = 2244.079 AUMs</b>	<b>P = 1473.437 AUMs</b>	<b>P = 2309.036 AUMs</b>
<u>1994-95</u>	<u>1995-96</u>	<u>1996-97</u>
<u>1947 AUMs</u> X <u>P</u>	<u>1630 AUMs</u> X <u>P</u>	<u>663 AUMs</u> X <u>P</u>
46.876666      60%	46.876666      60%	46.876666      60%
<b>P = 2492.425 AUMs</b>	<b>P = 2086.62 AUMs</b>	<b>P = 848.73 AUMs</b>

P = 11,454.327 AUMs/6 yrs. (Evaluation Period). Potential Stocking Rate for Cathedral allotment is no more than 1,909 AUMs. This figure suggests that we reduce the stocking rate by 784 AUMs allotment wide. What these calculations also point out is one out of the six years the potential stocking rate is higher than the average of the six years calculated. The following table also points out that the actual use reports submitted by the permittees confirms the BLM Potential Stocking Rate Formula.



Grazing Year	John Jackson	Jeffery Ranches, Inc.	Clen & Evelyn Okerlund	Barlow Pace	J. Allen Taylor	Stocking Rate or AUM's Used
1987-88	0	1110	242	60	163	1575
1988-89	0	1319	317	60	83	1779
1989-90	232	620	182	34	83	1151
1990-91	232	683	163	30	87	1214
1991-92	184	592	114	60	0	902
1992-93	588	683	106	60	175	1522
1993-94	588	687	122	60	347	1804
1994-95	588	902	100	42	315	1947
1995-96	588	984	58	0	0	1630
1996-97	407	407	43	0	0	633

Actual Use reports submitted by the permittees indicates show that during the majority of the years covered by the evaluation period, the permittees did not run their total permitted numbers. We feel that this was primarily a result of poor forage and vegetative conditions on the allotment. It is interesting to note that during the majority of the time, they ran livestock numbers which are close to what our proposed reduction reflects. For example, in 6 out of 10 years John Jackson utilized less AUM's than the proposed reduction to 530 AUM's. In 6 out of 10 years Jeffery Ranches utilized less than the proposed reduction to 811 AUM's. In 9 out of 10 years, Clenn Okerlund utilized less than the proposed reduction to 250 AUM's. In 4 out of 10 years Barlow Pace utilized less AUM's than the proposed reduction to 38 AUM's.

#### Reduction of AUMs - Calculations

Combined Active AUMs within the allotment is 2,693 AUMs. CRNP section of the allotment will not receive any reduction because Allen Taylor relinquished all of his 34 AUMs to the CRNP. In effect this is a 34% reduction in this portion of the allotment. Factor Bench will receive a 10% reduction because this area is the only area which has an upward movement in trend. Since John

Attachment 13



Jackson is the only permittee in this area his reduction is 59 AUMs and their new preference is 530 AUMs. The rest of the reduction will come in the area of Caineville Wash to the CRNP/BLM cattleguard in upper Cathedral.

2,693 AUMs Active AUMs Allotment wide.

- 666 AUMs [589 AUMs John Jackson, 43 AUMs Clen Okerlund (CRNP) & CRNP buyout of Alan Taylor's 34 AUM's]

**2,027 AUMs**

Clen Okerlund: 433-43 (CRNP) = 390 AUMs;  $390/2,027 = 19.24025\%$

Barlow Pace: 60 AUMs;  $60/2,027 = 2.96003\%$

Jeffery Ranches: 1,262 AUMs;  $1,262/2,027 = 62.25949\%$

Weslie B. Jeffery 314 AUMs;  $314/2,027 = 15.49087\%$

**784 AUM's to be reduced on Cathedral Allotment.**

-59 AUM's (10% of John Jackson's AUM's)

**725 AUM's for reduction.**

Clen Okerlund: 19.24025% X 725 AUMs = **140 AUMs** reduced

Barlow Pace: 2.96003% X 725 AUMS = **22 AUMs** reduced

Jeffery Ranches: 62.25949% X 725 AUMs = **451 AUMs** reduced

Weslie Jeffery 15.49087% X 725 AUMs = **112 AUMs** reduced

Jackson L. Co. 10.00000% X 725 AUMs= **59 AUMs** reduced

**Total: 784 AUM reduction**

The number of head of cattle Clen Okerlund, Jeffery Ranches, Inc., Barlow Pace can run from November to March 31 of any given year will be as follows:

Clen Okerlund: 390 - 140 = 250 AUMs or **57 head from 11/1 to 3/31.**

Barlow Pace: 60 - 22 = 38 AUMs or **6 head from 11/1 to 3/31.**

Jeffery Ranches: 1,262 - 451 = 811 AUMs or **199 head form 11/1 to 3/31.**

Weslie Jeffery: 314 - 122 = 202 AUMs or **51 head form 11/1 to 2/28.**

John Jackson: 589 - 59 = 530 AUMs or **106 head form 10/15 to 3/31.**

**Attachment 13**



Clen Okerlund & Jeffery Ranches, Inc., percent Federal range will stay in effect until State of Utah supplies the BLM with current update records on the permittees section.

Attachment 13



## Fall / Spring Grazing

Jackson Livestock Co.

Year	Active AUM's	Fall Use AUM's (10/1 to 2/28 = 151 Days)	Spring Use AUM's (3/1 to 5/31 = 92 Days)	Available AUM's Used
1989-90	235	38% 10/1 to 2/28	62% 3/1 to 5/31	99% or 232 AUM's
1990-91	235	38% 10/1 to 2/28	62% 3/1 to 5/31	99% or 232 AUM's
1991-92	235	30% 10/1 to 2/19	49% 3/1 to 5/31	78% or 184 AUM's
1992-93	589	62% 10/1 to 2/28	38% 3/1 to 5/31	99% or 588 AUM's
1993-94	589	62% 10/1 to 2/28	38% 3/1 to 5/30	99% or 588 AUM's
1994-95	589	62% 10/4 to 2/28	38% 3/1 to 5/31	99% or 588 AUM's
1995-96	589	62% 10/15 to 2/28	38% 3/1 to 4/15	99% or 588 AUM's
1996-97	589	90% 10/15 to 2/28	10% 3/1 to 3/23	36% or 213 AUM's
1997-98	589	62% 10/1 to 2/28	38% 3/1 to 5/20	99% or 588 AUM's

Since 1989, Jackson Livestock Co. used an average of 90% of there Active Preference AUM's in the Cathedral Allotment. In the last six years the largest use has been in the fall or dormat growth



J. Alan Taylor

Year	Active AUM's	Fall Use AUM's (11/1 to 2/28 = 120 Days)	Spring Use AUM's (None)	Available AUM's Used
1987-88	349	100% 11/16 to 2/29	0%	47% or 163 AUM's
1988-89	349	0%	100% 4/15 to 5/31	24% or 83 AUM's
1989-90	349	0%	100% 4/15 to 5/31	24% or 83 AUM's
1990-91	349	0%	100% 4/13 to 5/31	25% or 87 AUM's
1991-92	349	0%	100% 4/15 to 5/31	25% or 86 AUM's
1992-93	349	43% 11/1 to 2/28	57% 3/1 to 4/15	50% or 175 AUM's
1993-94	349	60% 11/3 to 2/28	0%	99% or 347 AUM's
1994-95	349	100% 11/1 to 2/28	0%	90% or 315 AUM's
1995-96	349	0%	0%	0%
1996-97	349	0%	0%	0%
1997-98	349	100% 11/1 to 2/28	0%	71% or 249 AUM's

Since 1987, Mr. Taylor used an average of 41% of his Active Preference AUM's in the Cathedral Allotment. Mr. Taylor had 10% of his AUM's in CRNP. From 1989-1991 and 1992-93, Mr. Taylor heavy used was during the spring (active growing period) grazing season. His season-or-use was changed by agreement in 1992 to fall use only. Records do not show an explanation for spring use in 1993.

Attachment 14



Barlow Pace

Year	Active AUM's	Fall Use AUM's (11/1 to 2/28 = 120 Days)	Spring Use AUM's (3/1 to 5/31 = 92 Days)	Available AUM's Used
1987-88	60	0%	100% 4/16 to 5/31	100% or 60 AUM's
1988-89	60	0%	100% 5/1 to 5/31	100% or 60 AUM's
1989-90	60	0%	100% 4/10 to 5/31	57% or 34 AUM's
1990-91	60	0%	100% 5/2 to 5/28	50% or 30 AUM's
1991-92	60	0%	100% 5/3 to 5/31	100% or 60 AUM's
1992-93	60	0%	100% 5/1 to 5/31	100% or 60 AUM's
1993-94	60	0%	100% 5/2 to 5/31	100% or 60 AUM's
1994-95	60	0%	100% 5/5 to 5/29	100% or 42 AUM'S
1995-96	60	0%	0%	0%
1996-97	60	0%	0%	0%
1997-98	60	0%	0%	0%

Since 1987, Barlow Pace used an average of 62 of his Active Preference AUM's. His use has always been in the Spring (active growing period) grazing season. The last three years Mr. Pace has not turned his livestock out on the Cathedral Allotment.



Clen Okerlund

Year	Active AUM's	Fall Use AUM's (11/1 to 2/28 = 120 Days)	Spring Use AUM's (3/1 to 5/31 = 92 Days)	Available AUM's Used
1987-88	433	19% 11/16 to 2/28	81% 3/1 to 5/31	56% or 242 AUM's
1988-89	433	63% 11/16 to 2/28	37% 3/1 to 5/31	73% or 317 AUM's
1989-90	433	71% 11/1 to 2/28	29% 3/1 to 5/31	42% or 182 AUM's
1990-91	433	58% 11/1 to 2/28	42% 3/1 to 5/31	38% or 163 AUM's
1991-92	433	0%	100% 3/1 to 5/31	26% or 114 AUM's
1992-93	433	0%	100% 3/9 to 5/30	24% or 106 AUM's
1993-94	433	0%	100% 3/1 to 5/31	28% or 122 AUM's
1994-95	433	0%	100% 4/11 to 5/30	23% or 100 AUM's
1995-96	433	0%	100% 4/14 to 5/8	13% or 58 AUM's
1996-97	433	0%	100% 5/12 to 5/30	10% or 43 AUM's
1997-98	433	0%	100% 4/27 to 5/30	31% or 130 AUM's

Since 1987, Clen Okerlund used an average of 33% of his Active Preference AUM's in the Cathedral Allotment. The last seven years this has been during the spring (active growing period) grazing season. Generaly speaking, the spring Aum's are used from 4/15 to 5/30. On 5/1 the AUM's are used in CRNP, which is 10% of Mr. Okerlunds AUM's.



Jeffery Ranches Inc.

Year	Active AUM's	Fall Use AUM's (11/1 to 2/28= 120 Days)	Spring Use AUM's (3/1 to 5/31= 92 Days)	Available AUM's Used
1987-88	1,262	57% 11/1 to 2/28	43% 3/1 to 5/1	88% or 1110 AUM's
1988-89	1,262	56% 11/1 to 2/28	44% 3/1 to 5/31	105% or 1319 AUM's
1989-90	1,262	70% 11/1 to 2/28	30% 3/1 to 5/31	49% or 620 AUM's
1990-91	1,262	56% 11/1 to 2/28	44% 3/1 to 5/31	54% or 683 AUM's
1991-92	1,262	66% 11/1 to 2/29	34% 3/1 to 5/1	47% or 692 AUM's
1992-93	1,262	66% 11/1 to 2/28	34% 3/1 to 4/30	54% or 683 AUM's
1993-94	1,262	66% 11/1 to 2/28	34% 3/1 to 5/1	54% or 687 AUM's
1994-95	1,262	39% 11/1 to 2/28	61% 3/1 to 5/31	71% or 920 AUM's
1995-96	1,262	80% 10/20 to 2/28	20% 3/1 to 5/1	78% or 984 AUM's
1996-97	1,262	80% 11/1 to 2/28	20% 3/1 to 3/31	32% or 407 AUM's
1997-98	1,262	77% 10/25 to 2/28	32% 3/1 to 5/1	89% or 1121 AUM's

Since 1987, Jeffery Ranches, Inc., has used an average of 66% of their Active Preference AUM's in Cathedral Allotment.

